

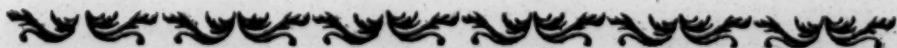
THE
Practice of Farming
AND
HUSBANDRY

In all Sorts of SOILS, according to the latest
IMPROVEMENTS.

Recommended by the
DUBLIN SOCIETY.

The SECOND EDITION.

By *WILLIAM ELLIS*, of *Hertfordshire*, Esq;





THE
PRACTICE of FARMING
AND
HUSBANDRY

In all SORTS of SOILS, according to the latest
IMPROVEMENTS.

*Very useful for all Landlords and Tenants, of Ploughed, Grass,
or Wood Lands,*

CONTAINING,

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| <p>I. The Nature and Improvement of the four Clays, four Loams, four Gravels, four Chalks and three Sands, with an Account of the Nature and Use of Stones in the common Fields.</p> <p>II. The Nature and Improvement of the Oak, shewing seven several ways to obtain a Wood thereof, also of the Beech, the manner of extracting its Sap after three different Methods for its long duration. The Ash, Elm, Witch-elm, Horn-beam, Maple, Lime, Sycamore, Horse and sweet Chestnut, Walnut, Hazel, White-elder, and the Case of the Black-cherry. And also of the Asp, Sallow, Poplar, Alder, and other Aquaticks.</p> <p>III. Of the excellency of the White-lamas-wheat, and all other Wheats, Barley, Rye, Oats, Peas, Beans, Thetches and Tills, with a Copy of two Letters from <i>William Hayton</i>, Esqr; of <i>Clarkenwel</i>, and the Author's Answer concerning the Propagating of Wheat and Rye in <i>Northumberland</i>. Also an Estimate of the Loss and Profit of Crops for one Year.</p> <p>IV. Of Natural and Artificial Grasses, being Remarks on a late Author's Writings on Trefoyl, Clover, St. Foyne, Lucern, Rye-grass and Cow grass. Also a method how to save the Seed of Lucern.</p> | <p>V. Of Blights and Blasts, their Origin and Nature, their Mischiefs and Preventions.</p> <p>VI. Of Ploughing in general, being a full Explanation of broad Land-ploughing, Bouting up, Thorough-ploughing, Bouting down, four Thoroughing, Hack-ing or Combing; also the Vale way or Ridging up and Casting down: With Descriptions and Dimensions of the Wheel Ploughs, also of the Foot, Creeper, Kentish, Newmarket, and a new invented light Plough that does almost double work with the same Horses that draws a single one.</p> <p>VII. Of Sowing in general.</p> <p>VIII. Of Seeds, and to know the Good from the Bad.</p> <p>IX. Of Weeds in general, their Mischiefs and Cures.</p> <p>X. Of an Invaluable Liquor never before published to steep Grain in for Sowing.</p> <p>XI. Of a new Method of Horse-Hoeing, its Advantages and Disadvantages.</p> <p>XII. Of Turneps, and how to save them from the Slug, Fly and Caterpillar.</p> <p>XIII. Salt, its several uses on Ploughed and Sward grounds, and of the Quantities that may be necessarily consumed in one Year, by a fifty Pound a Year Farmer.</p> <p>XIV. Of Manures in general, their Nature and Uses on proper Soils, &c.</p> |
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THE
PRACTICE OF FARMING

AND

H. B. AND R. Y.

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EXPLANATION of some WORDS in this BOOK.



SPECT, is such a Position or Bearing of the Side of a Wall, Barn, House, or Garden, to the *South, East, North, or West*.

Back-Bouting, is done by drawing the Plough once forward and backward, thorough that which has been boughted.

Baulks of Grass, are those which some call Hedge-Greens; they lie next to the Hedges in ploughed Fields, and serve to turn the Plough-Horses on.

Boughting, is made by two Thoroughts, that the Plough by going backward and forward, throws up against each other.

Broad-land Ploughing, is just turning an even Piece of Ground topsy-turvey, and is the neatest, cleanest Ploughing of any other.

Chiltern, the hilly Part of *Buckingham-shire*, so named, upon Account of its Coldness, with Respect to the neighbouring Valleys.

Combing, or *Hacking of Land*, is made by the Plough's being drawn forward and backward closer than Boughting in smaller Thoroughts; and tho' a little sharp Ridge, or Sleeving be left, yet in a manner, this is near clean Ploughing.

Four-thoroughting of Land, is not clean Ploughing, but running up four Thoroughts close together with the Plough; is best done off Wheat-Stubble Stitches in the *Winter*, to sweeten for Pease or other Grain: or Broad-Lands may be ploughed into four Thoroughts, a good Method.

Horse-hoeing, is so called by reason it saves Man's Hoeing; not that a Hoe is used by Horses, but their drawing a Plough in a particular Manner supplies the use of a Hoe.

Hove in Cheese, is a Hollowness with Eyes, caused by being made from Clover.

The Hoving of a Cow, is otherways a Swelling caused by the Wind, in Clover or Lucern Grass.

Kerning Ground, is that which, drest well, will produce a great quantity of Corn, as Gravel does, when others will run more into Straw and less Corn.

Loamy Ground, is that between Sand and Clay, of a Hazel Colour, and is of all others the best Sort.

Nitrous Dews, are Salts in the Dews, which are beneficial to all Roots they come at.

Smutty-Wheat, is that, which is discovered by it's Black Ear, and may be seen in standing Corn, from that which is sound. Upon rubbing it on the Palm of the Hand, it will leave a Black Powder like Soot.

Stitches, are small Ridges, such as we commonly have in *Ireland* in our ploughed Fields.

Tilth, or *Tilt*, is Ground reduced by the Plough and Harrow to a fineness or Powder.

Thoroughing down, is drawing the Plough once thorough the Bout, to lay it plain, for Wheat or Barley.



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CHAP. I.

Of the Nature, Culture, and Improvement of SOILS



Have thought it most necessary, as well as previous to the following Book, to begin with an Explanation of the very best Part of *Husbandry*, which I think is justly included in the several Terms of the Nature, Culture, Melioration, and Improvements of Soils; as therein lying the chief Foundation of After-success, in the Growth of Corn, Grass and Trees: And from
this

this Oeconomy do many Branches of this most useful Part of Agriculture proceed.

I shall therefore particularly illustrate the Benefits, as well as expose the sad Effects that arise from their good or bad Management. The Chiltern, or Hilly Country especially, is more than ordinarily concerned in these Subjects, by reason it is mostly enclosed, and consists in diversity of Soils, of Clays, Loams, Sands, Chalk, Stony Ground, Hurlucky and Gravelly Grounds, and several other Sorts, that abound more or less with Parts of these Earths. While the fertile Vale or low Country runs chiefly but in little other, than the black Loams or blewish Marley Clays in open Fields, that are commonly under one and the same management of Culture; and is easier by far brought into a Tilth or Condition for Corn, than this of ours, and with a great deal of less Charge and Trouble; for there, they are often afraid of being too fine, especially for their Beans, while we here are in as much Concern of fearing the Corn is bound in by the hard tenacious Nature of our Earth: That will not shatter nor crumble by a little Frost, or working as that in the Vale will; where they are generally Strangers to a very Stone, while we in the upper Grounds in many Places, are forced to plow amongst but little else. 'Tis therefore computed, that 5*l.* will go as far in a Smith's Bill in the Vale, as 15 will in the Chiltern, and it is in this latter that the plowed Ground lets for more, even for 20 *s.* an Acre, when the best of theirs but for 9. The Vale also is free from the exorbitant Charge of Chalking the Ground, or dressing it with Soot, Coney-clipping, Horn-shavings, Rags, Hoofs-hair and Ashes, which are Yearly bought by many of the Chiltern Farmers; so that I have known some of the Occupiers of gravelly Soils, say, they must lay out the value of
of



of an indifferent Crop in dressing, before they can get a full one into the Barn. When they in the Vale do all with their Fold, and Dungs that are made from their own Cattle and Fowls. And even some of their Ground (but rarely) is exempted from this, as that of *Chedington-Hill* in *Bucks*, part of which belongs to *Chedington Farm* of 1651. a Year, that I help'd a Gentlemen to about 12 Years since, a very easy Purchase, some of which has had no dressing on it in the memory of Man, and yet the Grain is frequently too rank: And therefore as the Rents and Charges in the Chiltern far exceed those of the Vale, it has been made a necessitous Study, how to manage these enclosed high Grounds, so as to make them answer their racked Rents and extraordinary Charges: This has produced several new Improvements by Turneps, Foreign Grasses, Plantations of Fruit Trees in ploughed Fields; as also the various kinds of Dressings utterly unknown, at least unpractised by our Forefathers, and the present Vale Farmers. Yet still are not these great beneficial Alterations adher'd to, and made use of by many in the Chiltern at this Day, who are so byass'd by their Ancestors Methods (as I have already more amply observed) as not to admit of new Rationales, tho' of ever so great Importance, and this is so very common, that many will justify (or least endeavour it) the third Year's Ground laying Fallow, which indeed is putting the Enclosure almost on the same Footing of an open Vale Field, but this obstinate Absurdity brings them under less Profit, than those that husband their Ground otherways. But there is a worse Cause of Complaint than the former, that is, their sowing Corn, and foreign Grass-seed and Turneps, in sarly, four Tilths, which is generally so fatal to the Owner, as to wrong him sometimes of half his Crop. For in
this

this Case, the Honey-suckle, Horse-gold, Crow-needle, May-weed, Black-bennet, Cliver, and Tyne-weed, which last is a Sort like a wild Thetch, and will climb and twist Cliver like, haul and pull down a whole Field of Wheat, growing sometimes 3 or 4 Foot high; these with the Thistles, and many others when they get the Dominion, is, up Weed and down Corn, as it happen'd in many Places in the Chiltern this wet and long cold Spring that held to the last of *May*, 1732. And this Piece of ill Husbandry is occasioned, not only for want of frequent Ploughings in their proper Seasons, but often by the Ignorance and Idleness of the Plowman, who either goes so shallow, or plows his Thoroughts so wide, or misses Part of the Ground. An Instance of which I never knew more clearly exemplified, than in two neighbouring Farmers, that occupied each their own Farm, one of 70 *l.* the other of 24 *l. per Annum*; the former, who had rather the better Land, kept generally Plowboys instead of Plowmen, who but half plowed his Ground, and that not often enough, would sow a Piece of Land 20 Years together with Corn, and in this manner went on in many other Things, till it brought him under such an Odium, that the Country cryed out he was an Enemy to the Common-wealth. So that the least Farmer had generally the most Grain, who managed his Ground in true Order; for which very reason, some Plowmen are cheaper at 10 *l.* a Year, than others at 5 *l.* and to say the truth, there is no such thing as right Farming without him, who will at one skilful Plowing do the Ground more good, than two or three, and for a great deal less Charge. This I have thoroughly experienced in the several Plowmen, that I have alternately kept, and I think I can say there is not above one in six that is a right Workman, even in this our celebrated

brated Country, which by many is accounted a sort of Nursery, for the Men of this Profession. There are four ways of preparing and meliorating the Ground: The first is by good Ploughings, and this way may justly be said to be the best of all others. The second is by mixing of Earths. The third by Dungings and other Dressings, and the fourth is by resting the Ground chiefly by sowed Grasses. By Ploughings it is that the most stubborn Earth is reduced, and brought under a different power; from a hard, stiff, clotty and fixed Substance, into a soft, loose and hollow one; whereby it is made a fit Receiver, and kind Entertainer of all those Seeds and Plants, which it would otherways either utterly refuse or not emit its fertile Qualities into the same, in a due Proportion: It is this that made the first *Italian* Plowman, be accused of practising the Magick Art, because he had much greater Crops than his Neighbours; but when he had proved this was done by that useful Instrument, the Plow, he was discharged under as great Reputation. This most excellent Invention is that, that causes the Ground through often Ploughings, best to receive the Sun, Air and Dews, as well as discharge its nitrous and sulphurous Vapours, by the Pores of the Earth, by which most natural Perspiration, the Ground is sweetned and made healthful to the Production of all Things that grow therein, which it could not throw out so often, and so easily take back again, when rarified by the Sun and Air, if not brought into that loose, hollow Condition, as the Plow and Harrows are the sole Occasion of: Hence it is that the Farmers about me often ask how I come by such Crops of Lucerne, Clover, Trefoyl and Ray-grass. My Answer generally is, that I give my Ground more Plowings than they do; nor can I persuade any of them to plow the Ground twice or

thrice before they sow Oats, by reason one Plowing is only due for their Culture; but then their Attempts of getting Clover to take amongst them is often abortive: This I have proved in a Field that was half Oats and half Barley, that was sowed with Grass-seeds all at a time. The Barley Part was plowed three Times, and the Oat only once; the Result was, that the Barley Ground took the Grass-seed very well, when the Oat hardly received any. The one was loose and envelop'd the Seed, the other hard and would not give room for a Lodgment, even to so small a Seed as Clover; for I only sowed and rooted it all in amongst the Grain at one and the same time, on the bare Surface, after the Barley and Oats had been some time sown. And common reason, as well as the Success of Things, is certainly an Advocate for the curing and meliorating of Ground by the Plow, which, by the Attest of our Farmers, is allowed also to be the best Weeder of any, but then the several Sorts of Plowings must be ordered and adapted according to the several Soils, and according to the several Seeds that are to be sown, or the Plants that are to grow in it; the other three Branches by mixing Earths, by Dressings and by resting the Ground, I shall amplify hereafter.

*Of the Nature, Culture and Improvement of the four
Sorts of CLAYS.*

Of the Nature of CLAY.

CLAYS either red, yellow, white, black or blew, call for different Operations with the Plow from all others, because all their Natures center in this one Particular Quality of their being tougher, and more tenacious than any other; it exceeds

ceeds all in its four, furly Nature, caused by it's intense, cold, aqueous and marly Parts; these so lock up its saline Particles, that there is no opportunity of making them yield, and act in the propagation of Vegetables, without great Violence; and to that purpose was Calcination found out, which quite alters the Clays into a reverse Nature, from their most binding, holding, clinging Parts, to the loosest of Bodies, as all Powders are: Next to this appears the Utility of the Plow, which tho' a milder Reduction of its constituent Parts, yet by its progressive Operation, will with the help of the Sun, Air and Rains, oblige it to a Dilution, and so make it a fit Receptacle for Plants or Grain. Clays, tho' all bear this one Name, do yet certainly all vary in their Natures as well as Colours, and require different Sorts of Culture in their Management, and therefore I think myself under a necessity to do justice to my Reader, by explaining their Properties and Ordering.

Red Clays here seem to stand in the front of all others for its three Qualities, of Toughness, Coldness, and Moistness; the first is so great a Power from its close Texture of Body, as to give way to none in many most necessary Uses, especially in that of being made an Artificial Foundation for holding Water in Ponds and Canals; this when duly ramm'd on Chalks, Sands, or Gravels, will preserve Water time out of mind, and keep it together as well as if the Earth whereon it is laid, was an entire Mass of Clay; this also is made a bottom for Brewers Tuns, and by being beat and tempered with short cut Straw, often supplies the place of Boards to the Sides of the poor Man's Cottage, with the help of a Hazel or other Poles. 'Tis this Clay that is in such Vogue at present for producing the most fertile Ashes of

all others for Sward, or plowed Ground, that many of our Nobility as well as others have calcinated great Quantities of it. By its Coldness, it makes the very best of Conservatories when paved with Brick or Stone, for keeping of Liquors and preserving them from sowing beyond all others, and is of the greatest Use in making Tanks in Fortifications, with the help of Terrace Mortar for holding the Rain Water, which is all their Subsistence, as having no other Supply all the Year, than what falls from the adjacent Houses, or Descent of the next Grounds, and returns by its refrigerating Quality the most refreshing Draughts. By it's moistness with a little Cover, it is defended from cracking and giving way to the running out or leaking of Liquors; which also makes it so serviceable in Bungs of Casks, and keeping of Beer from Sowing by its great Humidity, that it long retains in a small Body, and more if mixt with Bay-salt. 'Tis this rich Quality that saves our Clayey, Loamy Grounds from being parch'd, and the Crops from being burnt in the dry, hot Seasons; while the Gravels, Chalks, and Sands are in a ruinous Condition from the Excess of those two Extreames. These three Properties of Toughness, Coldness and Moistness makes it of extraordinary Service in Mixtures with Chalk, Sand or Gravel, as having the three contrary Qualities, of Looseness, Heat and Drought, and then makes it one agreeable Soil, though compounded of several. This red Clay requires more Plowings, and oftner and deeper than any other sort of Clay or Soil whatsoever, tho' more largely and better to expose all its parts to Sun and Airs, Heat and Drought, that it's close Body may be relaxed, it's cold and sour Nature sweetned, and it's moist and watry Property dried: By all which Benefits, the Salts in the Clay are brought under a power

power of Acting, which before was so pent up and fixed, as made it a mere barren Earth. Whereas according to the Notion of the modern Vertuoso's, this sort is more impregnated with fertile saline Particles, than any other Soil whatsoever: 'Tis therefore, that in this County, some Farmers will lay out half their all, in chalking their surly Clay Grounds, because they hope for 20 Years Success together, in reaping the Benefits back again with great Interest; for this Husbandry of late has proved it self to be of admirable Service in many Branches of Farming; and I believe never more than in the tedious, cold, frosty, and wet Months of *April* and *May*, 1732. that spoiled many Crops of Peas, in the Clay and Loamy Grounds that were not Chalked, and obliged the Farmer to Plow them up, and Sow white Oats in their room. But I fared much better, tho' on a wet, flat, clayey, loamy Ground, because the Chalk that was remaining in it, and two Plowings that I gave it, so loosened and hollow'd the Earth, as let in the Water lower than the Roots, and so preserved my Peas from the destructive chill, and cold, raw Vapour of the Water, that turned others Red, and brought on the Loss of whole Fields; for in red, clayey Soils there is a fatal Quality different from all other Clays, as I have observed, occasioned by its austere, and more than ordinary tough, cold and moist Nature, which when once it has caused the young, green Pea-shoot to turn red, it never recovers, which in all other Earths it has more or less an opportunity to do: This plainly shews the great Necessity there is of meliorating this Soil, before all others, as being naturally more barren and sour in it self than any of the rest. But when it is so thoroughly cured, this Ground has as many good Properties belonging to it: It is this Earth that produces the
best

best Crops of Wheat, it is in this that Clover, Turneps and Beans will flourish and be the biggest Crops; and it is here that Oaks, Pear, Walnut, Ash, Beech and other Trees will grow to the largest Size, be of better Wood and longer duration both in Timber and Boards, provided they are planted high enough on this sort of Ground, and therefore this red sort of Clay makes a greater demand for Ploughings and Dressings than any others, because it will do more than others if truly assisted with good Management; in short, I think I may say it is the best and worst of sorts as I have experienced: The worst as I have demonstrated before when its Salts are exhausted by cross cropping, or by too often sowing, and this is evident, by the Proof it leaves after a Crop of Barley is got off, that was sown on a Wheat Stubble; which notwithstanding the Ground being dressed well by Chalk and Dung, yet will resent and complain of this Usage for Ten Years after in a greater or lesser Degree; and however several Farmers have presumed to go on in this way, I'll answer for it, they will in time be convinced by their loss of this Male-practice: And this very Spring has produced a dismal Prospect of its great Prejudice on a high Clay Ground near me, that has been harrassed by cross Crops, Grasses, and four Tilths, although the present Tenant has chalk'd as well as any in this Country. This Soil agrees with almost all sorts of Dressings, and is not of that ravenous Nature as Gravels and Sands, &c. are; and to say the truth, less Dressings and more Ploughings, best suits this sort of Clay, which I have often seen, returns its Dung to view that had been ploughed in a Year or two before; but above all Dressings, none agrees so well with it as dry ones, such as Lime, Chalk, Soot and Ashes.

White

White Clay, or Tobacco-pipe Clay is not so tough, cold nor moist as the red Clay, but has looser, warmer and drier Parts, which renders it a beneficial Earth: This Land will be brought into a condition for sowing of Grain with less Ploughings, and when fully encouraged by good Tilths and Dressings, will yield waite Crops of Grain, as may be annually seen in some parts of *Ivinghoe* Parish; this by the more able and better sort of Farmers is double dressed by Fold and Cart Dung, and frequently returns 40 Bushels of Wheat on an Acre; and in this do Barley and Peas mightily thrive, as well as Wheat, especially in a wet Summer, but Beans do not so well answer. This flat, white Earth has, besides its many good Qualities, one very bad one belonging to it, that often ruins part of its Crop, while in their Youth, and that is by Frosts, Winds and Rains. The Frost sooner shatters and crumbles this Earth than any other, that I know of, which in Stitches or Ridges, makes it fall from the Roots, and leaves many of them bare; this Evil, is also much encreased by the Winds and Rains, for in the Winter and Spring, the violent Winds that succeed the Frost, blows this sort of Earth from the Roots of the Grain, and what that misses the Rains compleat, by washing the Earth away from many of the Roots; therefore the Fold is here the very best Remedy, which by the tread of the Sheep, makes this Ground turn before the Plow in a clotty Substance, and then it is in that Order the Farmer likes best. For as this white Land is easily brought into a Tilth, and so becomes finely powdered, it produces vast Quantities of Poppy which is the chiefeſt Weed that hurts this Ground, and then the Farmer is like to suffer; but the more to prevent that, and also the damage that often happens by the Frosts, Winds and Rains, they com-

commonly sow this Ground before, as well as at *Michaelmas*, with Wheat, and run the Fold over it afterwards, in order to settle and fix the Earth about and upon its Roots, that the Weather may not have power to spoil the Crop. Again, after this they use the Roler, by drawing it a cross and along the Stitches, to fasten and enclose the Roots of the Wheat, which makes a second and double Security against the Wind, Rain, Sun, and Frost, and is much better than top-dressing the Grain after it is in the Ground, with Dung, by reason the Dung will by its Heat, keep the Ground in a loose Condition, and so hinder the Roots from taking fast hold of the Earth; this makes the Fold on this Earth preferable to Dung, altho' it is plowed in, and also to light Hand-dressings that are sown early in the Spring on this Ground, as Soot and the other sorts. In this white Clay, Clover will grow, tho' not so well as in the red, and yellow, and black Clays; and therefore *Trefoyl*, and *St. Foyn* are generally here sown before it; Thorns and other Hedge-wood will grow well in this Soil, and so will Elms. As this Land is of a warm and somewhat dry Nature, they sow their Wheat, and their *Lent* Grain early, that they might get Cover before the Winter Frosts for the Wheat, and Shelter against the Sun's Heat in the Summer, and more effectually to come by an early and full Clover, they sow more Seed in this Ground than ordinary, to shade the Roots, and even about *Christmas* I have known them to sow Peas, so that great Dressings, and thick early Sowings in this Sort of white Ground, is perfectly necessary; but particular Regard is generally had by all Occupiers of this white Ground, to endeavour the sowing it in wettish Weather, that this Ground may turn up clotty before the Plow, whereby the Seed is the

the more fastened in it, the Poppy prevented, and the Crop better secured.

Yellow Clays require Ploughings in much the same manner as the red Clays, and as it is more Loamy than the red, it is certainly the richer Soil, and in it both Trees, Grains, and Grass will grow and thrive much faster; so that as this is the better sort, I need say little more, than that the same Culture and Management, that is requisite for the one, will do for the other.

Black or blew Clays — I am now come to touch on the very best of all Clays; 'tis this and the black Clayey Loams, that empower the fertile Vale of *Ailsbury* to vie, I am of opinion, with the richest Lands in *England*; and 'tis from hence, that the Vale of *Essex*, *Rumney* Marsh, and other low Grounds, that furnish this Nation, as from a Magazine, with the greatest Quantities and best sorts of Wheat, Beans, Beef and Mutton, &c. This black Earth produces the best and finest red Lamas Wheat, and in such large bodied Corns, as entitles their Sellers to 6*d.* a Bushel more than the Chiltern Men can generally get for theirs, altho' of the same sort, because theirs will not weigh ours by a considerable deal: However, I have now the Satisfaction to say, I hope in a few Years our Chiltern Country, by the help of sowed Grasses, Turneps, and the use of this my invaluable Liqueur, will be able to get better Crops of Wheat and other Grain than heretofore, and little inferior, if not as good as the Vale. This black Earth is composed of a black, blewish Clay, with some black Mould, and as the latter is more or less in it, it has so much a proportion of the Loamy Nature; it lies there of a considerable Depth, free from Stone, and clear from the great, deep Hogweed, Cat's Tail, and other Trumpery, that the Chiltern Men in many Places at this Day are, through Ignorance, trou-

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bled

bled with to the Destruction of many of their Crops, as I shall further make appear hereafter. There is no Earth in the Kingdom will carry greater Burthens of Corn and Straw on it than this will, and with as little dressing as any; for indeed the main sort of this black Vale Earth, is all a sort of Marle, and tho' sometimes of a stiffish Nature, at others it is as loose, by reason of the Frosts and Winds great Power in bringing it into a crumbling, short, loose Condition, so that here they commonly plow their very Wheat in as well as their Beans, for the sake of making it stand fast in their great open Fields, their Irons wear little, their Weeds only Thistles, Docks, and Hale-weed, their Dressings cheap and on the Spot, and their Rents and Servants Wages proportionable; but then these Conveniences are not without their Inconveniences, for they sometimes, I may say commonly once in about three Years, lose whole Flocks of Sheep by the Rot; their Lands often flooded, their Horses Heels frequently crack'd by the Dirt, their Firing scarce, as being obliged to burn the Stubble of Wheat, Barley and Beans, instead of Wood; and in short, they had need have something extraordinary to make them amends for living amongst Mud, Dirt and Water, where not only their Wheel Carriage is confined good part of the Winter, but also themselves from visiting even their near Neighbours; besides the almost constant and greatest Misfortune of all, of living in an unwholesome, aguish Air. It's true they abound in plenty of Corn and the best of Grass; but then they are Strangers to that grand Conveniency of enjoying Fields of Turneps, and sowed Foreign Grasses, which, if rightly improved, we may make our Chiltern as productive as their best Grounds in the Vale; and indeed 'tis this that is my Ambition and Aim, to study and find out by Experience, that Art, which will

will so help Nature as to make poor Land rich, by impregnating it with those fertile Salts, and nitrous, sulphurous Qualities, as to render it in effect equal with this black, marly Clay, which I am persuaded may be done in numberless Places, in this our hilly Country: Not that I pretend to say a Chiltern Man can farm as cheap as a Vale Man; no, that is morally impossible, from the hard Texture of our Earth, and the Stones that are therein, which ever will be the Cause of a greater Charge of Smith's and Wheeler's Bills, &c. and a larger Expence of Hand-dressings to supply the hungry, lean Nature of our high and dry Grounds: But then we have our advantageous Returns, of Turneps, sowed Grasses, Fire-Wood and other sorts, besides the Enjoyment of the third Year (that with them lies Fallow) under such Feeding which they cannot have, because on black, clayey Mould that is deep and wet, neither the Turnep, nor artificial Grass will answer, by reason of the Cattles stolching, nor will the Turnep any more than the Cherry or Beech thrive in their wet, spewey, clay Ground.

The Culture of the four Sorts of CLAYS.

THE red Clay being the most obdurate Sort, and the most difficult to reduce to a fine Tilth of all the rest; the Art and Labour of the most accurate Ploughman, is sometimes foiled in his Endeavours to accomplish it, by reason this Earth is made worse to answer that End, by the Extreame of Wet and Drought; by Wets it becomes more fast and tenacious than at other times, as Lime is by Water converted into a more viscous, binding Nature; so that when the Clay is in this Condition, the Coulture cuts through it without breaking the Clots, which causes so little impression and alteration in its Body, that often-

times three Ploughings in such sort, is to no greater Purpose, than one in Chalks, Gravels or Sands; this has been so often manifestly proved, that notwithstanding all the fallow Season has been imployed in Ploughings and cross Ploughings, and as frequently Harrowed; yet in a wet Summer I have known it out of the Farmer's Power to get this Ground into a fine Tilth, which, for all their dressings of Dungs and Soot, has spoiled their Crops of Wheat, by the Black-bennet, Horsegould, and other Weeds growing amongst and crippling the Corn, which is the sole occasion that Chalks and Sands are made use of, to alter its stiff and sour Nature; and this it will effectually do, if the Chalk is good, timely drawed, enough put on, and rightly plowed in. By Droughts this Clay is hardened, and when ploughed in this Season, arises in great Clots, that will not yield to the Coulter's Cut, nor the Sharr's Break, but will rather suffer driving up together in clotty Heaps, than breaking into a small Body; and therefore it is, that the red Clay when under such an untoward texture of Body, is suffered to lie exposed to the Weather, till a good Shower of Rain falls that will slacken, soften and meliorate its hard Parts, and make it fit for Reduction by the Harrow-tyes, and then no time should be lost in taking this Advantage of the Clays Alteration, by Harrowing it thoroughly both ways: For, as I have generally observ'd, this Evil of a sour Tilth is partly occasion'd by want of timely Ploughings and Harrowings according to our Maxim, Clays cannot be Ploughed too often, nor Gravels, Chalks and Sands too seldom. Therefore if a Wheat, Stubble Ground is to be got in Tilth for Peas against the next Spring, then ought the Stitches to be Ploughed up into Bouts at *Allhollantide*, and let lain all the Winter; then before you sow the
Peas,

Peas, harrow it, and sow them in four Thororoughs in the same Stitch in the Method it first lay, then after the Pea or Bean is sown, harrow it. Some will plough the Stitches into broad Lands at *All-hollantide*, and let lie all the Winter, and harrow the latter End of *March*, when they plough across the broad Land and sow in four thorough Stitches. The other Sort of Culture requisite for red Clay may be the very same as is set down in the Culture of Loam.

Yellow Clays calls for much the same Husbandry.

White Clays are different, because this Earth being of a shorter Nature than either red or yellow, will yield much sooner to the Operation of the Plough, therefore fewer Ploughings will here do more Service, because this Earth must not be too fine when sown, for the foregoing reasons: Formerly they sowed this Ground always in broad Lands, but now they sometimes (but seldom) sow it in Stitches for Wheat, but nothing else. The broad Lands hold Water more than a Stitch, and the Sun can't dry it as it will a Stitch.

Black Clays is a medium Soil between the white and red Clays, as to the ploughing Part, and therefore too seldom or too often Ploughings are equally a Fault here. This Earth lying mostly in Vales, is commonly ploughed with the Foot Plough only one way in broad Lands, by reason they lay it in half Acre Pieces, and that as high as they can, to avoid the Wet's pernicious Consequence; so that here they directly draw the Plough up and down by dividing the half Acre, and turning the Land two contrary ways, by which means a Henting or large Thorough is left in the middle.

Of the Improvement of the Four CLAYS.

THE red Clays agree with nothing better than its two opposite Soils in Nature, the Chalks and the Sands, which, when truly mixt, will be brought into a very agreeable Condition, and yield both to the Power of the Weather, Ploughs and Harrows, much easier than it will in its own original Quality; and when this is rightly meliorated, it will likewise be fit to receive any benefit from Dressings, much better, and quicker by far, than before; this Truth has obtained such an universal Reputation amongst all Farmers, that no good Husband will decline the opportunity of Chalking or Sanding his Clays, if it is in his conveniency and power, because without it, there is little hopes of good Crops of Peas or Beans especially, nor indeed of Oats or any other Corn. Many therefore are the sad Prospects of *Lent* Grain in the red, strong, clay Grounds, that have not been chalked in due time, which are often by this omission hardly worth their Money and carrying home, as may be too often seen about *Barkhamstead*, and where some of the worst Sort of Farmers trust to their Wheat Crops chiefly to pay their Rents (which this Sort of Land is most agreeable for) and forced often to buy Provender for their Horses of the better sort of Managers; because they can seldom come by plentiful Crops of *Lent* Grain or sowed Grasses as they otherways would, if they chalked their Clays; which would not only produce them these great Conveniences, but save in a great degree the excessive Charge of frequent Ploughings and Harrowings, because the Chalk or Sand will shorten and crumble the Clay before the Plough, to that degree as to make one Ploughing go as far as two or three without it.

Therefore

Therefore I will here be particular in my Account of the manner how, and the Charge of drawing Chalk to mix with the red Clay.

First then, Where the Chalk may be most commodiously drawn, is generally in the middle of ploughed Field: This is according to the late and present Practice, by the most judicious of our Farmers, and for so doing they assign this Reason; because when the Chalk is drawn, a great Hole or Pit is evidently caused, and by being in the Center of the Field, the Plough, by traversing the Ground on all Sides, in time will bring down and drive the adjacent Earth into it, and so by degrees will fill it up in such a manner as to make the place little or nothing the worse for either sowing or ploughing. In many places these Holes or Pits are made in an Angle, or on a grass Baulk of the Field, and then there is never any Chance of filling them up, otherways than by the great Trouble and Charge of bringing other Ground and casting it into them, as it is likely to be my case in a Field that I bought amongst some others about five Years ago, where I found a large, deep Pit made close to a Hedge, which had once like to have occasion'd me the loss of a Horse. But where a Wood or Spring adjoyns to the Field, or near it, then this Situation may be most proper for the sinking a Pit; or if it is made close to the Wood, it will have this Conveniency, that it will be easier fenced against Cattles falling into; and Trees or other Wood will nevertheless get up in a little time, spontaneously from the Fibers of the adjacent Roots, and then grow up and run faster than ordinary in this hollow Cavity of Ground, as is often seen in large Trees that grow in Dells and Holes of the Earth, where the Shade and Water have more power in the nourishment of all Vegetables than on plain Ground. Sometimes I have known

known the Men make more than one Pit in a Field, to find in a second better Chalk than they did in the first, where it presented it self good for a little way, till a Vein or Crust of the hurlucky, stony Sort prevented any further Penetration, which caused the second Attempt at some Distance, and answered the Owner's Satisfaction; for here appeared a fat, soft Chalk, with a yellow Coat or Covering and this is a certain Indication of its Goodness; where, out of this Pit, two adjoining Fields were chalked just by my House. The Chalk Drawer finds a Wheel Rope-barrow, and all other Tackle, and also sinks the Pit for the price of eight Pence a Load, each Load containing twenty Wheelbarrows full, which they also for that Money spread all about the Field. Twenty five or thirty Load will well chalk an Acre of Ground, which by discreet Ploughings will last twenty Years. (But here I must stop my Pen to expose the Inconsiderateness and Folly of all those who by thinking to save Charge, oblige the Chalk Drawers to put on six Acres of Ground, no more Chalk than would thoroughly dress one: This in Proportion I have known done, where it could be afforded to full dress. This defective Management causes many fatal Mistakes, for when Ground is so chalked, the Plougher and Sower are apt to order their Matters as if the Land was full dressed, which often deceives the Owner; for to cross-crop this Ground, or sow this Ground as if it had its due quantity of Chalk, is wrong, and will force it to complain in a little time of such hard Usage.) This Work must be sure to be done about *Michaelmas* or a Month after, that the Frosts may shatter and crumble the Chalk all the Winter as it lies on the Surface of the Earth; otherwise if drawn in Summer it will grow hard and petrefy by the Sun's great Heat and the Dryness of the Air; or if ploughed into

into the Earth in Lumps, it will so remain many Years: As a Farmer at *North Church* near me did, who, by mistake, drew his Chalk in the Spring, and ploughed it into the Ground in Lumps, that still remains so, tho' it is several Years since he had it dug. This Chalk when thoroughly reduced into a Powder by the Winter Frost, is called the best of Dressings; not as it is rich in it self, but as it sweetens, shortens and dries the Clay's Body, and so makes it fit to receive, and easier joyn and mix it self with other Manures, that may be thrown upon or ploughed into it; whereby it becomes a loose Earth, and lets the Waters in the Winter and cold Springs thro' its Pores, which before used to hold them, and thereby chill'd and starv'd the Corn. When therefore this Chalk is so reduced by the Weather, at *Candlemas* plough it with or without a Fin on the Sharr, very thin into the Ground, and by this one Ploughing may be sown Beans, either strained in the Thoroughts and afterwards harrowed down, or else by sowing the Beans all over the Field first, and then plough them in very shallow, or to sow them half under and half over, thorough and harrow well, and so after this manner may Peas be sown. One of our best Farmers this last Spring, eat off his Turneps early, and chalked his Ground well; then the beginning of *March* he gave it one Ploughing in broad Lands, and harrowed in his Barley and footed it on the top. This is an excellent way to lose no time, and hereby the Grain has no less then three Dressings. If Sands are to be laid on this red Clay, then twenty or thirty Cart Loads on an Acre can't be too much for this purpose, to shorten so tuff an Earth as some of the strongest Sort is.

The yellow Clays being somewhat more of the Loam's Nature, will admit of the same Improve-

ment by the Chalks, Sands and Dungs, as the red, and also the very same sowings of Corn.

The white Clays will be certainly much better'd if mix'd with a rich black Sand or other fertile Dressings, and therefore where the first can't be had, the second perhaps may, such as Turfs pared off of Commons or Highways, and other Places, and reduced to a shortness in the following Manner. Take Turf or any other mouldy Substance, and make a square Bed of about a Foot thick; then take as much dry Chalk or Lime and make a second Bed of it, by laying it a Foot thick on the last; then lay as much Horse or other Dung on the Chalk or Lime for a third Bed; and so proceed one on another after this manner till you raise the Clamp or Heap as high as you can; this let lie for two Years at least, turning it several times by a careful Man, who knows how to mix it with Judgment, and in that space it will rot and be so incorporated as to make a very agreeable Dressing for this white Clay: If each Manure is laid two or three Foot thick, it may answer to the same purpose, and therefore Discretion in this respect is the best Guide. But above all other single Dressings, does the *London* Soot excel in this Soil, and forces on any Corn that is here sown to a wonder; so that if the Soot is sown early, it will quickly bring on such a growth of Stalk as will shade its Roots against the Summer's Weather: Twenty Bushel will dress an Acre of this Soot, and about fifteen large Cart Loads of Dung will do for that quantity of Ground. Others reckon that folding first, and afterwards spreading it all over with Dung, is the compleatest Dressing of all, and will on this white Ground often produce forty Bushels of Wheat on an Acre.

The black Clays come next under my Consideration, which, as they are the richest of all others, stand

stand in need of the least help: However as there is seldom any Soil to be met with but will bear some Sort of improvement or other; this Earth, as rich as it is in its own Nature, will agree with rotten Horse, Cows, and Swines Dung; Pigeon, Hens, or Rabbits Dung; Ashes or Soot: But as the two latter are seldom used, because they generally lie too distant for Wheel Carriage from *London*, that makes them too dear for the Vale Farmers purchasing; I shall drop that Article, and insist on some of the rest. Where this Soil is, there are commonly kept a Number of Horses, Cows, Hogs, Hens, and Pigeons; which being the Farmers own Produce, does almost all over the Vales, suffice to manure their Land with the help of their large Folds of Sheep; and therefore they as carefully take care to clamp up their Yard Dungs as soon as the Season of the Year will permit them, in order to rot and shorten against the next Wheat or Barley Season; which it will much sooner do, when so thrown up in high particular Parcels, than if let lain all the time in their Yards as it was first made. This they carry on their Lands sometimes before they sow their Wheat or Barley, and plough it in, that it may against that time further rot, mix and incorporate it self with the Ground. And when their Pigeons or Hens Dung is made use of, they sow it on the top, immediately after their Barley, which they expect the succeeding Rains will wash in: This Hand-dressing is so efficacious on these black Clays, that I have known a *Chedington* Farmer send into *Bedfordshire*, and give 10*d.* a Bushel for a Waggon Load, I believe fifteen or sixteen Miles off, where they keep the most Pigeons of any Country I believe in *England*: But this is seldom practised by any but the first-rate Farmers, who are able to send far and dear buy. For here their vast Crops

of Straws, and great Numbers of Cattle, make such Returns of Dung, as enables most of them to thorough-dress their own Grounds without other helps. So that in this Soil, Chalks, and Sands are altogether inconsistent with its Nature, because it being a pure, warm, marley Clay, shatters on the least Frost in a smaller or greater Degree.



CH A P. II.

Of the Nature, Culture, and Improvement of LOAMS.

The Nature of LOAMS.

LOAM comprises all those sorts of Earths as are in each of themselves one individual Nature and Soil, because its true Species is a Compound of other Earths: Yet as such, whenever we see a true Loam, it may be justly called a general, and also an entire Earth; by reason it answers in the growth of all those Vegetables, which the several Soils in particular (of all which this has a Share) is peculiar or adapted to. As the Clays, for Wheat or Beans; the Gravels, for Barley; and the Sands or Chalks, for Peas, &c. From hence it is, that there are so many names of Loams given to several Earths; as the clay Loams, gravelly Loams, stony Loams, sandy Loams, and chalky Loams; but these are no otherwise so, than as they have a true Mould mix'd with their several Species, which renders them abundantly more fruitful; insomuch that where they are not so mix'd, the only and best way to bring each to a true

true perfection of Soil, is to make a Melangery of Earths, by laying Sand or Chalk on a Clay, a Clay on a Chalk or Sand; and so after this manner many Soils may be incorporated with each other, opposite in Nature, whereby they commence Loams, and then also become the best of Soils: It is indeed a rarefaction of Earths, which tho' poor in their original single Natures, yet by this artful, plural Operation, the Sands, Clays, Chalks, Gravels and stony Grounds are rendered of double Value; according to that Relation publish'd in my first Book, *pag.* 96. which by the favourable Opportunity of the near and easy Situation of each ingredient Soil, may be brought to pass at a small Expence, either by carrying of so much Sand to the Clay, and the Clay as it is wanted to the Sand, which reciprocally amend each other; or else as we do here in common, improve our Clays, and Clay Loams, by digging Chalk and mixing them therewith. And it often happens that Sands and Chalks grow amongst Clays, by their several particular Lays or partitions in the Earth, as it is in *Pitstone* Common, and also in some of my own Ground: And when by these or other Methods, Grounds that were not so before, are thus converted into Loams; this may then be said to be marlesied, or at least brought into such a Condition as to be the nearest to Marle of all others, as are the Clayey Loams in particular, and so of the rest in proportion, as they more or less abound with that Quality, and then it is a universal Soil, as being capable to carry forward the Growth of all manner of Trees, Grain and Grasses, and all manner of bulbous and esculent Roots: In short, it is then an approved Soil for all sorts of Vegetables both Foreign and Domestick; and therefore as it is thus in the general, it may be also made so in particular, on any extraordinary Occasion,

Occasion, by Alteration and Additions, a fit Receptacle for separate Plants or Flowers, by an Augmentation of Sand for Carots, Wood, Earths, or Tanner's Bark for Flowers, and so for any other, this gives an easy Admittance and Encouragement. This Mediocrity of Soil affords an Artist an Opportunity of trying Experiments; This encouraged me to venture on the fifteenth Day of, perhaps, the coldest wet *May* that ever was known, to sow Lucern Grass-seed, that succeeded to my entire Wish: The particular Management of which in this Earth, I shall declare in the Account hereafter of Lucern Grass: Also in fine Loamy Ground in my Garden, I made several Experiments this Summer, in Clays, Sands or Gravels, which I could not well do before. (I have by several Trials on Loams, this Summer, found out what will improve an Acre of Ground to a high degree for the Charge of the Acre; which I would gladly publish for the Benefit of the World, if I could meet with reasonable Encouragement.) And where this Loamy Soil lies not too wet nor too dry, it will answer all manner of Dressings the soonest and best of any whatsoever; because its Body being a true, fine Mould of either a black or hazel Colour, which will not suffer too loose a texture of Parts, so as to part with its Dressings too soon, as the Sands do; nor yet will refuse a speedy Conjunction with them as the Clays do, but will mix, retain and return their fertile Assistance more regularly than any other Earth.

The Culture of LOAM.

THIS natural Soil, as it will bear almost all sorts of Vegetables that shall be set or sowed in it, and therefore may be justly entituled a
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general one; yet this, as well as all others, requires particular sorts of Ploughings, Harrowings and Roleings, according to the preceding Uses it was under; and according to the Intention of Employment this Ground is to be under *in futuro*; I will therefore suppose it to be last, a Wheat Stubble, and that design'd for Peas the next Spring; then bout the Stitches up at *Allbollantide* with the Wheel Plough, and let it lie all Winter: Then harrow just before you sow the Peas, and sow them in the Stitch the same way as it lay at first, in four Thoroughs, and harrow it well down, which gives leave to the Pea, easier to make its way out of the Ground: And this Method is so much better than sowing them in broad Lands, as they lie drier in the cold, wet Spring.

Wheat Stubble for Oats.

Barley Stubble for Peas. Bout it up at *Allbollantide*, and the latter end of *February* or beginning of *March*, harrow the Bouts down, and sow the Peas or Beans in four Thorough Stitches the same way as the Stitch lay at first.

Barley Stubble for Oats. Plough it up as the broad Lands go, the latter end of *February*, harrow it, and sow the Oats next way, then harrow both ways as need requires.

Oat Stubble for Turneps. In *January* plough it in broad Lands the same way as they were before; then about the middle of *March* comb it overthwart. In *April* or *May* harrow it down and comb it again; then about *Midsummer* harrow it down and plough it across into broad Lands, and sow it with Turneps. This combing is also called Hacking, and are synonymous Names for one and the same Operation: This sort of ploughing sweetens the Ground better than bouting, because it breaks all the Earth, and therefore may be called clean Ploughing.

Oat

Oat Stubble to lie fallow. The first Ploughing is to be the beginning of *April* in broad Lands the same way they lay; then the beginning of *June* harrow it, and bout it overthwart; then in *July* bout it again the same way. After Harvest bout it down, harrow it plain, and dung it ready for sowing of Wheat.

A Pea Stubble in Stitches to lie fallow----- In *April* four Thorough it with the Wheat Plough as the Stitches go, then in *June* harrow it down and bout it the same way; in *July* hack it overthwart, or bout it up across; then after Harvest thorough it down, or bout it down; if it be full of Weeds, the last way is best; then harrow and dung it, and it is fit to sow Wheat.

Pea Stubble for Turneps. Four Thorough it up first as the Stitches go, in *January*, and harrow it at leisure; in *March* bout it down, then comb it across in *May*, and at *Midsummer* dung it, plough it overthwart in broad Lands, harrow it, and sow it with Turneps

The Melioration and Improvements of LOAMS.

TO mellow Loamy Soils by Dressings: All manner of Dungs, Soot, Ashes, Horn-shavings, Hoofs-hair of Hogs, and other Beasts; Rags, Mud, Chalk, &c. are proper Improvements for this Earth, but are not all to be put on at one and the same time. In the Vale they put on their Horse, Cow, and Hog Dung on their fallow Ground for Wheat, the middle of Summer, which I think has more ill Husbandry in it than good; because the Sun, Air, and Rain by consequence must dry and wash away the goodness thereof, before the Wheat can have a Tryal of its Benefit; but if you were to ask some of them as I have done ---- why do you lay on your Dung
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so soon, for the Sun and Air to carry away its Goodness? their Answer will be in the Negative, and tell you they lose it not, because the Rain washes the Goodness into the Ground, and they'll have it that way, and the Sun will not hurt it, because it will only dry into the Litter or Straw with which it is mix'd; but this we Chiltern Men seldom do; on the contrary, we often bring our Dungs out of the Yard into the Field, and there make a Clamp, cover it with some Turf or Mould, and let it lie and rot till about *Michaelmas*, and then lay and spread it on our Ground just before we sow the Wheat or Turneps; by which the Dung's Quintessence is secured. But if sooted or Ashed, it should be sown on about *Candlemas* or a Fortnight after; for about this Time the great Snows are generally over; which with the sharp Rains prove often fatal to these Hand-dressings, by soaking and washing them too fast and too soon into the Ground. But Pigeons, Hens and Rabbit Dung should be sown in *January* on the Wheat, because they are not so soon wash'd in, but rather require some Time for their Dissolution. And if Lime is made use of as Dressing for Wheat, it must be slack'd, and then immediately sown hot on the last Ploughing, all over the Ground, about 25 or 30 Bushels on an Acre; this should lie 6 or 10 Days, and then Plough and sow the Wheat in Stitches as at other times, which will secure it against very cold, wet Weather in Winter and Spring, and make it look of a deep dark Green, when the Neighbours will dye and look yellow by the chill of Frosts, Cold and Wet. Another sort of Melioration and enriching the Ground, is, by Foreign Grasses, most of which the Loam best agrees with, beyond all other Soils. In this Land, Clover, Trefoyl, Lucern and Ray-grass will vastly thrive; and by be-

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ing fed or mowed, for one or two Years or more, will be part of a Dressing, and make all Dungs and other Manures go a great deal further. A judicious old Farmer by me, brings his Dungs and lays them on Clover about a handful high; this, when spread, he Ploughs in as shallow as possible with the Clover, and lets lie a Week or more, and then harrows in his Wheat: This is an excellent way to enrich the Loams, lets in the Water below the Roots, and so preserves the Wheat from being chill'd and kill'd by the Dung and Clover, hollowing and heating the Ground, which may be accounted two several Dressings in one: And as soon as the Wheat is off, plough it up twice, get it into a fine Tilth, and sow Rye in *September* for Food for the Sheep early in the Spring, or else for *Lent* Grain the next Season. Another way is to plough in Clover Knee-high; this is done to save Dung, and is called Half-dressing, because it will hold good for one or two Years in the Ground independently of other Assistance. Another way is to sow Buck or *French* Wheat in *May*, and Plough it in about three Weeks before you harrow the common Wheat in; this is called a whole Dressing, and will endure by the Grounds retaining its goodness three Years.

N. B. The ingenious Mr, *Benson* tells me that some Bushes should be fixed in the Wheel Plough, just before the Sharr Point, which will drive down the Buck Wheat flat, and so make it fitter for the Plough-work, or turning it into the Ground.



C H A P. III.

*The Nature, Culture and Improvements of GRAVELS**The Nature of GRAVELS.*

GR A V E L S. This Earth has variety of Natures according as they severally abound with diversities of Earths or Stones. There are the sharp or stony Gravels, loamy Gravels, clay Gravels, sandy Gravels. On all which I shall distinctly make my Remarks, as they have occurred to my Knowledge; having all but the sandy Sort more or less in my own Fields.

Sharp Gravels. This Earth is composed of small, sharp Stones, mix'd with some Mould, which is better or worse, as the same is in a less or greater Proportion: If more Stone than Mould, then it is so much the worse, because the Soil is so much the looser; if almost all Stones, as some is, it is so much the worse still, as some is near the top of *Dunstable Downs*, and in many other Places in this County, not worth above 1 s. or 2 s. 6 d. an Acre; because the Waters runs so swiftly through them, that washes the Dungs, or other Dressings away below their Roots, so that the Fibers of Corn or Trees, soon become hungry, pine, and oftentimes perish for want of the Dung's nourishing Subsistence; that in Clays and Loams have firm and holding Bottoms, and will lie two or three Years to visibility. There is also another sort of hungry Gravel, that is made up chiefly of the round, blew Pebbles; this of all others is reckoned the worst, and of the most cor-

morantine Nature; this is such a Devourer of Dung and other Dressings, that in many Places. they utterly refuse to Plough or Sow it, but let it run with what poor Grass, Nature in a small degree throws up. Of this last sort there are great Quantities about two Miles from me, which might be vastly improved, did not the Tenants Obstinacy prove a Barr to his Interest. I was lately concerned at an Appraisement of a Crop of several sorts of Corn that grew on such sort of Ground, as these two are. Some of the Wheat at Harvest was dear in my Judgment of 20 s. an Acre, notwithstanding it was dress'd, which help'd to break the Tenant, and obliged the Landlord, who was but in indifferent Circumstances himself, to take it into his own Hands: I told him, to improve it to a good Account, was to dress it with *French* Wheat, but I cannot understand my Advice had any more Effect, than if I had told a passant Traveller of a Mine in *India*.

Lqamy Gravels are those of a better sort than the former, for under these Terms as much or a greater Quantity of Mould is supposed to be, than small Stones; this I may justly term a fertile Soil if rightly managed, because here is some hold for the Roots of Trees, Corn, or Grass to receive Nourishment from: and as all Gravels are of a Kerning, or Corn-yielding Nature when supplied with Heaven's propitious Influences, and Man's due Assistance: I have known this Ground to return above eight Quarters of Barley on an Acre, and other Grain proportionable. Most Gravels are of a hot, dry, loose, hungry and binding Nature, which opposite Terms tho' seemingly inconsistent, yet carry experimental Truths with them; loose, dry and hot I say, for that this compound Ground of Stones and Mould, cannot by their make and texture so unite, as to be a close Body, by reason
of

of the various shapes and bigness of the many Stones with which the Mould is conjoyned, as a small one amongst two great ones, or angled ones among globular; and so the rest are of so many different Forms, that must cause a hollowness and disjunction of Parts with the Earth, notwithstanding the Moulds enveloping many of their irregular Sides; from hence it is, that the Rains and Snows so easily make their Passage through the Cavities of this Ground, to the great Prejudice of the Trees, Corn, or Grass that grow therein. Hungry; because the Dungs and Dressings are so readily carried off, and wash'd away past Recovery; that without more than common supply of Mould and Dung, this will (I am of Opinion) prey on its own Mould Substance, and so grow leaner and more barren, by sowing its most vital Part the Mould. This leads me to take notice of the Notion of some, that think these small Stones breed and are nourished by the Sun, Air, Rain and Mould; and indeed it seemingly carries a probability with it, for it is surprizing to find hardly any diminution in a small Field, where vast Quantities have been carried off to mend the High-ways: If so, then by consequence the Mould administers great Part of their Sustenance, which perhaps may be one Reason why these Gravels are so voracious. I know a great Gentleman that now wants several of the great Stones that we call growing Stones, composed of vast Numbers of small Pebbles that lie in little Cells or Holes; his Use for them is to put them down in his Grounds for lasting boundary Marks for the several Parishes, that triennially make a Progression, and cut deep and large Marks in his great Trees for their future Knowledge, how far their Parish Limits extend, to the Damage of the said Trees, which he hopes to prevent by placing these sort of growing

ing and ever durable Stones at the proper Places. And possibly, nay likely, they may deserve those Names, though imperceptible to our Eyes or Memory. Binding; this needs no other Proof than the many Misfortunes accruing by its hard and crusty Surface, so made by the Weights and Washings of the heavy Rains; and more or less so, as they sooner or later succeed the Ploughings and Sowings; for if they come before this sort of Earth is settled by Time, it will harden it the more, and sometimes cause it to run as it were into a Pan-cake spread, particularly on Descents, and bind the Wheat, Peas or Barley in so fast on all Sides, that they are often ruined, as not being able to make their growing Progress, for want of Room in the Earth, for the Swell and Multiplicity of their several Stalks; and this I take chiefly to be occasioned by the Rains washing the Mould on the Stones, which naturally joyns and cements their hard Bodies to the Moulds soft, plastick Nature, and thereby becomes one close and obdurate Ground.

A C A S E.

A Field near me had a gravelly, pebbly Bottom, covered by a black, light Mould of about four or six Inches deep, this was a Lay of natural Grass about twelve Years ago, since which it has almost constantly been under the Plough: This sort of Ground is naturally called a dying Ground from its great Lightness, because its Earth is very hollow and its Bottom retains no Wet; so that tho' it was well ploughed, well dressed and a flourishing Crop of Wheat with large Ears, yet it mostly died, and the Weeds, as the May-seed, Horse-Gold, Poppy, and wild Oat got up to that degree this wet Summer, 1732. that it was hardly worth

worth Reaping; and indeed it is the Nature of most Grounds, Loams, and Clays especially, to produce the wild Oat if sowed too constantly and too long with Corn. The Remedy of this is, to give it constantly its due Course of Fallows, whereby it may enjoy a thorough Sweetness; and let the Dressing be every Wheat Year or Barley Season, a Manure accordingly: In the Wheat Year the Fold is certainly the greatest Friend to this sort of Ground of all others, because it will tread this light Earth, and bring it under a closer Texture of Body, than otherways by its own Nature it would be; and therefore far better for the Crop of Wheat that is to grow in it, and more discouraging to all manner of Weeds and Worms that will be sure to infect this light Ground, especially in wet Summers, if care is not made use of to prevent their ill Consequences; besides, the Fold by the pressure of the Sheeps Feet and Bodies enables this hollow Land to sustain and hold the Roots of the Wheat fast, that the Winds and Rain cant so easily force it down, which they will certainly do when that is ploughed often and sowed in a fine dusty Tilth, and this more surely if manured with Dungs of Horses, Cows and Swine, that encrease the Grounds Lightness and keeps it hollow afterwards. It is therefore that this loose Earth and dry Bottom should be ploughed and sowed in a wettish Time, for that contributes vastly to its Binding, and causes it to remain so during the next Winter and Summer that the Wheat is to grow in it. As to Barley and other Seasons at the Spring of the Year, the Case is somewhat altered, by reason the wets that generally fall then, help to the fastning of this Ground; that may therefore be ploughed and sowed earlier than Clays in order to enjoy the same; besides, the *Lent* Grain has only about half

half the time of the Wheat to be in this Earth, which gives not that Opportunity to Weeds for their Predominancy as the long Wheat Season does: But such Ground as this is. best laid down with artificial Grass, in order to obtain a natural Sward, which this Earth will naturally run into, and much quicker if encouraged by sowing the Seeds of fine Upland Meadow Hay amongst the Clover, Trefoyl or Ray-Grass. The Occupier of this Field, notwithstanding he has often ploughed and sowed it, was ignorant of the true Nature of this Soil that lay contiguous to three other Fields belonging to the same Person, as believing it to be of much the same nature as the rest, and therefore gave it the same Usage; but herein he remained mistaken, till a Person of better Judgment than himself convinced him of his Error. All which plainly shews the Excellency of this Knowledge in the Nature of Earths; and as it is in the animal Oeconomy, that there is no right Application of a Remedy without the Disease is first known; so it is here that every Farmer ought to make it his primary Study to inform himself of the several sorts of Ground that often belong to his Farm, and that besides his own Judgment to consult his Neighbours, who as Natives on the Place may be able to let him know more than the Dictates of his own Reason, that formerly were more remote from the same.

Clay Gravels, or Clay, Loamy Gravels happen to be part of the Ground of several Farms in this Country; their Nature varies but little from the gravelly Loams, but wherever the red Clay is part of the Soil, there will be occasion for more Ploughings, and warmer Dressings than in any other sort of Gravel.

Sandy Gravels are of so loose a Nature, that they are sooner brought in Order than any of the rest

rest, and will bear very good Crops of Corn, if duly assisted with Manure; and that much forwarder than the other Gravels, whereby Peas, and Turneps may be had in one and the same Year.

The Culture of GRAVELS.

SHARP, or Loamy Gravels require much the same sort of Ploughing and Harrowing, as also the same sort of Dressing; these as well as the sandy Sort are in the number of the light, sweet Soils, and are all of them so different from Clay, that too much Ploughing here will wear out the Ground, as too little in that Soil will not bring it into a bearing Condition: A good Season of fair Weather is more than ordinarily requisite in these Soils to prevent its binding; and also shallow Ploughings when Grain is sowed on broad Lands on the same, otherwise it's in great Danger of being hindered getting thro'.

The Clay Gravels are still more binding, and therefore must have more Ploughings.

The Improvements of GRAVELS,

GRAVELS, of all other Sands, stand most in need of being brought into a Condition, as will strictly answer this Title; to find out which, in a true beneficial Manner, many have been the Attempts, and various the Efforts of Farmers; which as it is a matter of great Consequence, I shall here mention several Particulars. First then, I knew one, whose Farm of about 60^l. a Year was chiefly a sharp and loamy Gravel, but not of the blew Pebbly sort; this Man carried from his Farm just by me several Waggon Loads of Peas, Thetches, Chaff and other Grain to *London*, in order to load back again with Coney-clippings, G Horn-

Horn-shavings, Soot, &c. This Dressing did not the first Year do quite so much good as afterwards. It happened by the Landlord's Disgust, that the Man after laying out great Sums on this sort of Dressings, was forced off his Farm and succeeded by another good Husband-man, who directly enjoyed the former's Expence of Dressing; for this sort of Manure is not easily devoured by the Gravels, nor wash'd away, as being of a tuff, spongy Nature; so that it will lie and hollow the Ground, retain the Wets, and so keep the Ground moist and warm for several Years. To this was join'd another Expence, and he was the first Man in these Parts that chalked Gravels to the wonder of the other Farmers about him. However, this answered its full End in all Respects, for it absolutely hindered the Gravels from being closed and bound by the Rains or Snows, added a more leamy Part to the stony Part, made it Plough much better, and kept it in a pure, sweet Condition, that has for several Years bore extraordinary good Crops of all sorts of Grain that grow thereon; But the use of these sort of light Dressings from *London* are much more laid aside, and less regarded than formerly, by reason of the great Numbers of Sheep that are kept and folded on these Gravels and other Grounds, that are found far cheaper, and I am certain, are quicker and better Dressings. Some will in lieu hereof, lay on, and Plough in their long Horse Litter, allowing it to answer best in Gravels, as being of the Horn-shavings Nature, tuff and spongy. Others will lay on Mud, or Highway Stuff, which indeed has vastly enriched this sort of Ground, especially if it is a true Mud, free from Sand. For something must be done to these Gravels by way of Dressing, or else nothing but Poverty will succeed in this hungry Soil; and to say the truth, if any Ground stands in need of double Dressing, this
does

does; and then there is none will pay better, by returning the best of Crops from it's kerning Quality. But the Horse Litter will answer very well another way, that is, by laying it on the top of the Stitches or broad Lands, as soon as the Wheat is sown (for then it will grow thorough it.) This is an excellent way to Plough some in; and afterwards lay some all over on the Top; for as Gravels in general are a light, loose Ground, this Cover will preserve it from shoaling in the frosty Seasons; and before next Harvest it is a Rarity if it is not hauled and pulled into the Ground by the Worm; or else devoured by the voracious Nature of the Gravel, which makes Potatoes, and all of the Haulm Tribe, to be so good Dressing for this Soil --- It is strange at first Sight, to see great Crops of Wheat and other Corn, grow (seemingly) amongst vast Quantities of Stones, that in this Country are common to be seen, where hardly any Mould can be discern'd. But this is accounted for by the Owner very plainly, when he tells the Querist, that he would not give one Load of Stones for several Loads of Dung, because these Stones have several advantagious Properties in them: First, as they are of a cold, moist Nature, they preserve the Roots of Grain from being dried and scorched by the great Heats: Secondly, they help to keep in the *Sal Terræ*, Vapour or Breath of the Earth, which by their Cover is obliged to perspire more slowly; nor is it so readily exhausted by the Sun's attraction, and therefore administers its fertile Quality more regularly and more abundantly to the Vegetables that grow amongst them, in that little Mould there is, which the small Fibres of the Roots will be sure to search for and find out, and join, altho' but in a very small Quantity, and that lodged amongst the several Crannies and Cavities of the Stones.

And here I have further to say of Stones; that it is the Opinion of some, they never grow after they are out of their native Bed in the Earth; and this, they say, is proved in Pavements which never encrease: That their Consumption is not perceived in some Fields, because as they grow large in the under Earth, the Plough finds them and turns them up, and so supplies the Room of them carried away. That the large *Guernsey* Pebbles, weighing half a Hundred, more or less, that are in the *London* Pavements, do certainly grow on the Sea Shore; but whether the Salt Water, the Earth they lie in, or the Sun and Air contributes most to it, I can't determine: But these sort of Stones have in my slender Opinion a greater Opportunity of a quick Growth than most, or any others, that I know of, from the porous Parts of their brown Skins or Cover, by which they seem to take in the Salts that the Sea leaves.



C H A P. IV.

The Nature, Culture, and Improvement of CHALKS.

The Nature of CHALK.

CH A L K is a most useful Earth, and serves for many Uses, besides those in Agriculture; as in making of Lime, Whiteing, &c. and shews it self in great Quantities in the Counties of *Hertford, Bucks, Kent and Surrey*, where it is a most agreeable Soil for Corn and several sorts of Grasses, according to its peculiar Nature; as the dry and lean Chalk, the hurlucky or stony Chalk, and the

the marle Chalk: The dry lean Chalk will bear Wheat, Rye, Peas and Thetches very good, if it is rightly dressed, and the Season of the Year is favourable; but Barley will not do so well here as the rest, not but it will grow in this Earth, and sometimes be a very good Crop, but it is not so natural, nor so sure in its Returns. The fat sort of Chalk serves as Manure for Clays, Gravels and Loams, to reduce them into a sweet, hollow Nature, which obliges all good Husbands where their Conveniency will admit of it, to get it at a great Charge and lay it on these sort of Lands. The fat, marle, clayey Chalk is the best of all Chalks; this does not devour Dressings very hastily, but will with a little Manure produce vast Crops of Grain, as well as Clover Grass, which the lean Sort can't be said to do. It is this sort that is sought after by the Farmer when he digs Chalk for manuring his other Earths; and when it appears with a yellow Coat without side, he then concludes he has got into a Vein of fat, mellow Chalk that is of great Value.

The Culture of CHALK.

CHALKY Ground to lie Fallow. The first time plough it up the latter End of May in broad Lands; the begining of July plough it across in broad Lands; then harrow it after Harvest, and sow it with Wheat or Rye in Stitches. Chalk admits of the shallowest Ploughings of any, particularly the dry and stony Chalks. But in the clay Chalks the Plough may go as deep again.

The

The Culture of CHALK.

THIS Soil, the dry, lean sort especially, being of a short, crumbling Nature, is easily got into a Tilth, by reason on this Ground Weeds grow the least of all others whatsoever; and therefore two Ploughings in this sort, will do as much Service as four will in red Clays, which makes the Country-man say, a Fallow and a Stirree is enough for a Chalk; for here is not a Conveniency for Bouting and four Thoroughs, &c. as in other Lands, which obliges the Plough-man to turn it each Time of ploughing, if he can, the reverse cross way of the last Operation, and generally into broad Lands, which formerly was altogether the Method, but latterly some sow their Wheat in Stiches. And let what Grain soever be sowed in these Chalks, it ought to be sown in wet-tish Weather, because it is then made something clotty and rough, which best hinders the Growth of their only and most pernicious Weed the Poppy; and also by its binding Quality caused by the Wets, it is better fastned, and will stand the Frosts and Colds much better: Whereas a fine Tilth in this Soil is altogether to be rejected; for as the Chalks are naturally light and loose in themselves, they are made so much the more so by being fine, and then the Wheat and other Grain will fall before the high Winds, and sometimes be almost spoiled. The marly Clay sort indeed will give more room for the Plough, because it will admit of a greater Depth; and the loamy Chalks more room than the last. However, be it ploughed in broad Lands or Stiches, rolling is very necessary, especially in the last, where it is used by being drawn long and cross ways, in order to fasten and keep the Ground firm and close to the Roors of

of the Grain; and also the better to preserve them from the violent Heats and Droughts in Summer, which broad Lands particularly are more capable of doing than Stitches, as they lie flatter, lower and more solid; yet there is this good property in a Stitch, that the Horses drawing double, and thereby treading hard on the fleevings of the Stitch, causes the Ground to lie flat in the clotty Condition it is first turn'd up in; and this is the main reason why some sow their Wheat in these chalky Stitches, to prevent the Poppies growth, by throwing up one hard, clotty Lay of Earth upon the other, that by degrees makes up the whole Stitch; and this is performed by two Ploughs in the best manner, the Foot Plough to make the Sleevings, and the Wheat Plough the Hentings; so that both work here at one and the same time.

To have Peas after Wheat or Barley. They give the Chalk but one Ploughing, by sowing Peas at or a little after *Christmas* in a four thorough Stitch.

The Improvement of CHALK.

THE Chalks in general agree best with, and makes the best Returns under that incomparable Dressing of the Fold, and that for several Reasons: First, it is a moist, fat Dressing, which with very little difficulty communicates its fertile, saline, oleagenous Properties, to this dry, light and lean Earth; also by the tread of the Sheep, and especially after the Corn is sowed by folding thereon; This Earth becomes faster and firmer, and so made more fit to hold the Seed, and preserve it against the Droughts and Frosts, which are the two arch Enemies very often to this Soil, and this may be done in the Winter upon the
Chalks

Chalks dry and warm Body, in order to prevent its being washed or blown away from the Roots of the Corn: Secondly, next to the Fold, Soot claims the Preference; this being a light Body, full of fiery, sulphurous Parts does great Service to the Chalk when laid on about *Candlemas*, 20 Bushels on an Acre, and being washed in by the succeeding Rains, forces and brings on such a quick Head as best defends it from the Severities of a cold Spring, and also from the violent Heats and scorching Droughts in the Summer following. Therefore some will dress and meliorate this Chalk and the chalky Loams with Rags chop'd small in the first Place, and then sown out of a Seed Cot all over the Ground, about five Hundred Weight on an Acre the beginning of *June*, and then ploughed in broad Lands, which will warm and enrich the Earth against the Wheat Season, and afterwards receive and hold the Rains so as to keep the Roots of the Corn moist in this dry Soil, and by the Heat of their Woolly Substance, help it very much against the Rigour of Frosts and cold Winds. A Taylor that had some chalky Ground, chop'd his woollen Rags, and watered them at Winter with Chamber-lye, and in the Spring sowed them on this white Land, then directly ploughed them in, and harrowed his Barley on the same; this caused so great a Crop that it was laid flat at Harvest. Long Horse Litter therefore in my Opinion must be a good top Dressing on the Stitches of Chalks, especially to prevent the Frosts shoaling and crumbling this Earth from the Roots of the Corn, and also the wash and bash of Rains, and the violence of the Winter Winds, which are all fatal to this Ground; insomuch, that People have been forced to plough their Wheat white Ground again in the Spring, and sow it with *Lent* Grain, because their Wheat was destroyed in this loose,

loose, light Soil by the Frost, Rain and Wind. This obliges the Farmer to double-dress this Soil, that he may get Cover for it directly, which is a great Security against these Disasters. The worst of these Chalks that I call of the hurlucky or stony Nature, will bear, when thorough dress'd, good Wheat, Rye, Barley, Peas, Thetches and Tills, but where this Dressing is wanting, they commonly sow for *Lent* Grain. Tills and Thetches, these both will grow and flourish in the poorest Chalks, as may annually be seen under *Dunstable Downs*, where these two are often sown amongst Oats, as Bullimon, as being surer in their Returns by far than Peas, and the Sheep value their Haulm next to Hay, and will generally be very greedy of it, and eat it clean up; and the Thetches will fatten Swine, if given to them as they run about, and not in a Sty. The Tills also are good for Horses, Cows, &c. Several Farmers sow these Thetches and Tills for their Horses, which they mow green and give them in Racks. On this chalky Soil will Trefoyl and St. Foyn flourish to great Profit; the Trefoyl is of great Service in this Ground for fattening of Sheep and Lambs, and also for milch Cows; it is a happy Opportunity that Tenants enjoy by this Grass, because Clover will not answer in these dry and lean Chalks. Here also St. Foyn, that most excellent Grass, will flourish in the driest Summer by means of its carroty Root, that runs so great a depth into the Ground, as to draw in a moisture to its Assistance, when most other Grasses are burnt up. Rye grows well in the poor Chalks, which by being eat by the Sheep, and folding them thereon, all or part of the Winter, thickens it mightily against the next Growth and is a great Improvement. The Rye is sown in *August*, on a sweet Tilth. This chalky Ground in general ex-

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cells all others in producing the fine, white Barley, which for its colour and thin Skin, is preferred to all for making the best pale Malt, as I have said before. It is this Earth that is the Malsters,



C H A P. V.

The Nature, Culture, and Improvements of SANDS.

The Nature of SANDS.

SANDS either white, yellow or red, or black, are the loosest and sweetest of all Earths, and of great Service in many Cases in Agriculture and otherways: The first good Property answers in mixing them with the red Clays, which so alters the Clays tenacious Constitution, as to render it another Soil, even a Loam; and when so, it is then brought out of a sterile, barren Condition into one of the most propitious Soils that is, by incorporating the globular, hot, dry Particles of the Sand, with the long, stringy, binding Texture, and cold Parts of the Clay. In its self, it is but a barren Soil. and the Crops of any thing sowed in it, will be sooner scorched, dried and burnt up, than in any other sort of Earth. This is of so hot and dry a Nature, as to forward the Growth of any Vegetable sooner than any Earth besides, if Rains happen in due Season; and therefore gives the Owner full leave to have two or three Crops a Year, under good Dressings. It brings forth the sweetest of Turneps and Carots, and sounder generally than any other Soil does; for here the
Worm

Worm meets not with that secure Lodgment, as Clays, Gravels and Loams afford them. It is contrary to their cold, slimy Natures, and is not only an Enemy to them, but to all manner of Weeds whatsoever. This Soil is cheaply and quickly got into a Tilth; and here may be had Peas, Thetches, Potatoes, Wheat, Barley and Oats, but the last three I cannot greatly commend in this Soil, unless in a wet Summer. Rabbits breed much in this dry Earth, and turn to great Profit, and therefore is often made use of for Warrens: This will bring forth Lucern Grass very well, and seems to be natural for this and St. Foyn, whose tender Natures require a warm and dry Sort. The best of blew and white Peas come off this Ground; but black Sands surpass all others in Fertility, which, according to Report, is the reason of those vast Crops they have in *Flanders*; where in this short, loose Ground, the Ploughman drives one Horse, who alone is able to plough this Soil.

The Culture of a SAND.

THIS Ground is commonly situated low, and lies in some Places very wet and some dry, they both demand the same Culture by ploughing them into broad Lands, and across each time with the Foot Plough, if it be not ridged up high, but if it is, then they plough it always one way.

The Improvements of SAND.

THIS Soil is generally full deep, and therefore affects any manner of Dungs which may be buried here to rot, as may Rags, Coney-clippings, Horn-shavings, Oxes Hoofs cut small; but Lime, Chalk or Soot is not here so agreeable as in some other Grounds; not but Soot is a most ex-

cellent Manure, even for all sorts of Land whatsoever, by its light, sulphurous, adhesive Nature, and therefore will do Service here, if Rains succeed in due time; otherwise it will potently encrease the Heat and Drought of this Soil to the Grain's Damage: This loose, sweet Earth gives the Farmer Opportunity of having two or three Crops a Year, by its easy Ploughings that presently bring it into a Tilth.



C H A P. VI.

The Nature and Improvement of the OAK.

THE Oak, of all other Trees, claims the priority of Regard in this Nation for its many transcendent Uses; but above all for Ship-building, which indeed are the Walls and chief Fortifications of this Kingdom. And however remiss and indolent we have been of late Years in cutting down, and not planting again, this most excellent Timber, as may be seen in *Wing Park*, and many other Places with an Eye of Pity; yet of late, through (I presume) the several printed Items, published by Men under a Concern for their Countrys good; some of our discerning, able Men have received such Convictions, as have provoked them to sow and set Acorns, or plant young Oaks in many Acres of Ground. A singular Example of which in these Parts, is the most noble Duke of *Bridgwater*, who is certainly one of the greatest Conservators of Wood in this Kingdom.

The Oak agrees with almost all sorts of Soils, but grows best in the richest Grounds, and is the longest

longest liv'd Tree of all others; yet is its Date determined shorter or longer, as the Nature of the Earth is wherein it grows: In Clays it is more tedious, as its Roots obtain their Food with more difficulty; but then its Wood is most serviceable.

In sandy, chalky or gravelly Grounds, they grow much sooner, from the light, loose texture of these Earths, that gives an easy progress to the Oak's Roots, which brings on its Maturity sooner than the stiff, cold Clays will, and therefore they are never so large in this loose Soil, as in the more close, but then its Grain is clearer and smoother. This Tree obtains a firmer Footing in the Ground generally than any else; for it's rarely found that an Oak is without a deep tap Root, which in a rich Soil has been known in thirty Years to get a Foot diameter in Body, and when it is arrived to this Bulk, it then thrives much faster, by reason of its large Body and Head, which now is capable of being shaken by the high Winds, that strain its Roots and let in the Benefits of the several sorts of Weather; and therefore it is a sort of Rapine to destroy such young thriving Trees, that get at thirty or forty Years of Age, more in one Year, than they did when younger in several; especially at first they took Root towards the top of the Ground; for in my Observations I seldom ever saw a thriving Oak, whose Roots in the beginning took deep in the Earth; and therefore I think my self more than ordinarily obliged to enter a Caveat in this Place, against the fatal, but too common, Practice of Planting, Sowing and Setting too deep, which will surely retard the Oak's Growth, and hinder its Magnitude: Whereas this, above all other Trees, ought to enjoy all the propitious Benefits that can be given
it,

it, on account at best, of its tedious Growth, before it is rightly fit for Ship or other Buildings.

I have two sorts of Oaks growing in my Grounds, which I call the short, spreading Oak, and the tall, upright, taper Oak, both which grow very well, if planted at first high enough, whereby their Roots may be obliged to seek their Food from the Top and best Part of the Ground: And here if any is so curious to prefer Plantations of one sort before the other, it is only sowing or setting the largest Acorns of the different Trees; or if there are Walks or Rows to be made of them, the distance in this respect must be allowed accordingly; for the spread Oak requires as well fifty or sixty Foot asunder, as the other forty or fifty; and this distance will very well admit of the Growth of Underwood, that may be fell'd at every twelve Years End to great Profit, especially if it be Sallow or Ash, these two being the most advantageous of all others for their quick Growth, and the many Uses their straight Poles may be converted to, as hereafter I shall observe when I write of Underwood: Or if the Sallow alone is planted altogether with the Oak, it will be found most agreeable, because this Root runs not very deep nor broad, which will give leave to the Oak to make his slow Pace with little Interruption from the quick Growth of this most profitable Underwood: And therefore it is, that neither Beech, Oak, or any other standard Tree, should be permitted to grow in Company with the Oak, because of the great Prejudice that may in time ensue from their quicker mounting into the Air; and then it's likely the Oak will suffer in its low Head, by the Drip of their taller ones; which Majority where-ever it happens, they will be sure to maintain, from the great Advantages they enjoy, by the Sun, Air, Rain and Dews, that ever
will

will be most propitious to the highest Trees, by the free and uninterrupted Extention they meet with, to receive the Sun's attraction and nourishing Heats on all Sides of their spreading Heads; That then will cause them to perspire, and sweat out their crude and noxious Juices in the Day time, which they imbibé and drink in by Nights, through the many Pores of their spongy Barks, Leaves, and Fruit; and it is thereby that Trees subsist in a true Regimen of Health and Prosperity, while the lowheaded, underline one, grows mossy, scabby, knotty and stunted, for want of a free Enjoyment of those salubrious Benefits. And this grand Conveniency not only belongs to the Oak, but indeed all sorts of Trees whatsoever: And it is here that the Vegetable is obliged to receive and take in by Nights and foggy Days, those pestiferous and insidious Particles of the Air, which are great Enemies of their Life, and would likely end in their Destruction, were it not for a due Evacuation of the same, by a free Perspiration through the several Parts of their different Bodies, by the Sun's most powerful Influences; that by degrees brings on such a Rarefaction of the Sap and Juices, as to cause them vigorously to discharge their phlegmatick Crudities, that the Tree alternately receives.

In order then to raise great Numbers of Oaks in the best Manner; I shall observe that in a plentiful Mast Year, due Care should be taken, about the beginning of *November*, or sooner, to collect and get the largest and soundest Acorns (for the biggest of all Seeds are best) when they fall from the Tree through Ripeness, for the full Maturity of them is a main thing; when enough are gathered, the disposal of them is next to be considered. If conveniency allows them to be sown at the best time of all, they ought to be got into the Ground

as soon as possible, upon the finest and well dressed mellow Ground, that has been under a preparation for this Purpose, the whole Summer, if not the Winter too before.

Various are the ways that have been practised in this Work, according to the Ground and different Opinions of Men; but as I take it to be my Business at present, if I can, to shew the cheapest and most profitable way to obtain a Wood of Oak; I shall therefore begin with sowing Acorns in broad Lands on this hollow Earth. Let the Land be ploughed into very small Thoroghs immediately before the sowing of the Acorns; then take 2 Bushel of them, and sow out of a Seed Cot, by the broad Cast of the Hand, then harrow them in at discretion: This Quantity, if they take, will more than furnish an Acre of Ground; but here is Allowance given for Incidents from Fowls and Mice: From this Management perhaps there will arise an Objection, that this large bodied Seed will not be Haled, because in broad Lands there is not a sufficient hollowness of Ground to cover their Bodies from the Injuries of Weather, Fowls, and Mice. To this I answer, That there is Depth enough between the Thoroghs to envelope and cover most of them, by means of the harrow Tynes, insomuch, that if these or the greatest part of them grow that are covered, there will be a sufficient Number to stock the Ground if the rest were all carried off; but that Danger is not so great, if we consider that in a plentiful Year of Mast, and at that Season of *October* or *November*, there is full Provision for Birds and Mice; not only from this Mast of Oak, but from the many Corn Fields that then abound with great Store of scattered Grain from the preceding Harvest, which by consequence will divert their Search and Quest after these: And if a Fowling-piece is employ'd

a little, the Danger will be the less, for the loose Ground will readily receive and draw in the Acorn, and then the hazard is mostly over from these sort of Enemies, and also from the Weather, because the Radicle having taken the Ground before the Severities of the Winter, it will thereby be enabled to maintain it self from Winter to Winter, till it becomes a sturdy Oak.

The next thing is to have a strong Fence, that no sort of Cattle may possibly break in; and then there is no more to be done, but to leave this sowed Ground to Providence, and there is no fear of the best and cheapest of Woods.

Remarks on the preceding METHOD.

THIS way of sowing the Acorns and harrowing them in, is surely the nearest of all others to that of Nature; which always receives upon, and nourishes the Seed from the very Surface of the Ground, as being the richest Part of all the Earth; is nearest, and more ready to take in those Benefits that the Sun, Air, Rain and Dews communicate, which are the very vital Parts and Nurses of the young Oaks; and therefore the more they enjoy of these nutritious Influences, the faster they grow; and this is the true Reason that those numberless Objects that present themselves to Travellers Eyes, who will but imploy them in the Views of the deep and wrong planted Bodies of Trees, are longer growing, and so become set and stunted in less than half their time, as may appear by the knotty, mossy Bodies and brousy Heads of Oaks, Ashes, and Beeches, &c. and that in some of my own Fields, which was caused at first I suppose by their being too deep planted, that obliged their Roots to make their way into, and seek their Food amongst the red Clays, that
I lie

lie about two Foot lower than the Surface; while several others, that are planted high and near them, flourish and grow in clean upright Bodies and thriving Heads: This has brought on necessitous Consequences, that has obliged many Owners of such Trees to cut them down in this their stunted Condition at less than half Age, which is the time that a well planted Tree runs and grows more in one Year than formerly in several, as I said before; by which may plainly appear the great Value, Moment and Importance of high sowing and setting at first the Seeds and Sets of these Timber Trees, because an Error in the beginning is the worst of Errors, as being most difficult to redress, and often irreparable; and I think I may say, that wherever a Seed or Set at first is put into the Ground too deep, it will never make a good Tree of any sort.

A Second Way.

MAY be done by planting the Acorn at every forty Foot Distance, in Rows or otherways. First, make a Hole of three or four Foot Diameter, and a Foot or two deep; lay the Earth about the Edge of the same in small Parcels, the beginning of Winter, for the Frosts to shoal and sweeten against the Spring: Or, if you are to plant these Holes at *Allbollantide*, then they must be prepared accordingly before; so that either then, or at Spring, they may be a fine Tilth and loose Order; and when so, thrust three, six or nine Acorns in the Circumference of each Hole, about half a Finger's depth, which by the next Year will be up, and then may be drawn all that are superfluous, and only the Master-Shoot left; at this rate there will be twenty seven Oaks left in a square Acre of Ground, at one in each Hole:
After

After this the Ground about the young Tree must be carefully Hoed several times a Year, for ten or twenty Years, and Fences made about each Oak.

This way will certainly do very well, but the excessive Charge that attends the yearly Management of the Oaks for some Years, is seemingly to me a little discouraging, tho' in process of Time, I believe, it will pay a Man in Proportion, to fifteen or twenty *Shillings* each Oak at twenty Years End, provided their Side-Shoots are duly trim'd, and Underwood not planted amongst them till six or eight Years be past, lest it get up and top the young Oaks to their great Prejudice.

Remarks on the Second METHOD.

THIS way has this Advantage, that the Roots of the Acorns have wider and looser Room to run into than the former; and therefore I must needs say is an excellent Method; because the hollowness, fineness, and sweetness of any Earth, contribute greatly to the quick Growth of any Vegetable therein planted; and were it possible always to keep their Roots growing in such a loose Mould, an Oak, or any other Tree, would certainly attain its full Bulk in half the usual time it does: This I have in proportion seen experienc'd by a Tree's Growth, that was set in a Pit or Hole of loose Earth of a large Extension, which out-run all the Trees in quickness of Shoot that ever I saw: Here the Acorn may be set as shallow as a Person thinks fit, and the Ground about them for twenty Years together hoed and always kept clean from the Tyranny of choaking Weeds; and here as the Tree grows up, should a Person annually observe to rub the Body with a Hair Cloath, or Back of a Knife, the first Ap-

plication to be made use of in dry Weather, the latter in Wet, which will dilate its Bark, and open its Pores for readier receiving the Sun's Warmth, and the Rain's Moisture, that will feed and assist a Tree more than is generally thought of: It is this that keeps off that grand Enemy the Moss, which will inevitably overtake all Oaks little or more that want this sort of Husbandry.

These Holes may be made in Rows to answer both ways of the Field, that the Plough may thereby have room to pass and repass the cross and long ways of this Ground the better, and for the great Conveniency of Ploughing and Sowing any sort of Grain, or Grass Seeds on the same for the first ten Years of this Plantation, till the Oaks have got good Roots, and their Heads high enough in the Air as to be out of Cattle's reach: But then here may arise an Objection, that the young Oaks will surely suffer, if not ruined, by the Horse, Cow, and Sheep, that may be turned into this Ground to feed, if the Oaks be not fenced in. To this I answer, that to avoid the great Expence of Cooping and Fencing each Tree, I would turn no Cattle into this Ground, but supply it another way, and that is, if Grain is on it, then as soon as it is got off, plough it up, and sow it in the next Spring with more Grain or Grass; if the latter, then it may be let to grow, and mow two or three Years successively, to the great enriching of the Ground; if, again, Corn is to follow that, it's only ploughing the Land into a fine Tilth, and dress it with Dung or other Manure; and so likewise for the Seeds or Sets of Underwood that are to grow thereon, and furnish this Field for ever after

Here therefore by a right Management, the Charge of Fencing the young Oaks about, may be saved, and the Ground altogether as well enjoyed

joyed to Profit; but then, as a Safeguard to both, there ought to be, not only an outside Hedge and Ditch, but also good Railing within-side, by driving a large Oaken Stake at every five Foot distance, and pinning or nailing thereto three or four Rows of Rails, about four Inches deep each Rail; this will be an effectual Guard, with the help of a Man's over-sight now and then, and a forbidding Fence against those Night Encroachers and Invaders of a Man's Property, who make it their Business to take all Advantages of a distant Piece of Ground, so planted and sowed with Acorns, and have spoiled several Acres by their Horse and Sheeps biting the leading Shoots before the first seven Years were over, for the Lucre of the Grass that grows between the young Trees. But if a Fence or Coop was at first set about each Hole, that would not secure the Underwood from the Damage of Cattle, which afterwards is to grow between them: Whereas this inside Railing round the Field at first, will last twenty Years, and thoroughly secure both the Oaks, Corn, Grass, and Underwood, from all Hurt of Beasts, and greatly from the Rapine of Thieves.

This Method of planting Acorns in Holes, is not altogether confined to a Year, or half a Year's preparation of the Ground, but may be done on a sudden: For suppose I had a mind to get a Wood of Oak, Ash, or Beech on a Wheat or other Stubble, or Meadow Ground; then at *Allbolantide*, or at Spring, I would dig my Holes at forty Foot distance, and at the same time bring as much Virgin Mould to the Place as is necessary, and carry as much to fill up its vacancy, which is only an Exchange, but greatly to our Purpose in forwarding the Oak's Growth; or else I would mix Soot, Rabits Dung, or Fowls Dung, &c. with the natural Earth that comes out of the Hole,
and

and put it in again. If Grass Ground, the Turf must lie at bottom. In this I would plant my Acorns directly; the rest of the Ground may be ploughed and sowed according to discretion, with Corn or Grass, as I have before hinted. By this no time is lost, and all the Encouragement that can well be given, is here made use of. Here is saved that great Charge and Trouble of Summer-waterings, that a planted Acorn does not require. Here is saved the fatiguing, and hazardous Work of transplanting; and here is a Tree to come up, that will be stronger in the Ground, and grow faster than any Set whatsoever.

If the Oak is to grow in Parks or other Places, where the Herbage is to be fed by Dear or other Cattle, then sixty or seventy Foot is but a due distance for the Growth of such Tree and Grass; and by how much they are planted asunder, the more the Oak enjoys a free Air, circulation of its Sap, and perspiration of its worser part, which is always more promoted and furthered in its Head, if the Side-Shoots are constantly pinch'd or pulled off, and the Ground once a Year digged about the Oaks Roots at every *Michaelmas*, and afterwards kept dished in a Bow-like manner for the better receiving the nutritious Rains.

Thus an Acre of Ground, worth but five or ten *Shillings* an Acre a Year, may be improved to near, if not quite, twenty, with a trifling Charge, which too plainly discovers the Indolence of many able Owners who are wanting in doing themselves and the Nation this great and good Service.

I have forbore to set down particular Calculations of the several Charges and Expences of Railing and Fencing in the Holes and Field, because that is obvious to every Farmer, and is of a greater or lesser Amount, according to a Person's Conveniency of having Wood and Servants of his own;
or

or as that part of the Country, where the Operation is performed, is nearer or further off from *London*.

A Third Way.

AND that is, when by several Ploughings and a good Dressing, the Earth is got into good Order, and lies in broad Lands; to sow the Acorns half under Thorough, and half on the Surface, as we often do Peas and Horse Beans: At first the Man sows half the Seed all over the Piece of Ground, and ploughs them in as shallow as possible; when that is done, he sows the other half over the same Ground, and harrows them in; this secures one half however from the Fowls and Weather: But this according to the Mind of each Person; for my part, I am for following the Steps of Nature as close as I can, and I think I cannot copy her more nearly than harrowing in the Acorns as I have said before, that they may grow from the very Top of the Earth, as all do that fall from Trees, or dropt and left by Fowls or Mice; as it also is, with the great Numbers of Cherry-trees that grow in our Woods, occasion'd by the Stones that the Fowls drop from their Beaks and Bodies.

Remarks on the Third METHOD.

I Confess that where the Ground is a true Loam, and that ploughed into a fine hollow Tilth, and that again furthered by Cart Dungs; the Acorn here may speed very well, but without this Management, I think it's but Male-practice, and will greatly endanger burying the Acorn; as I knew it once done some Years ago, by a Mans following the Plough, and straining in the Acorns every

every second Thorough of a Wheat Stitch, that was thus ploughed down into broad Lands, which absolutely bury'd the Acorns, and the Owner lost both his Hopes and Profit by so doing; because the Earth was heavy and clung for want of several Ploughings that should have preceded the sowing of the Acorns; and also for want of its being well dung'd, that would have put the Ground into good Heart, and kept it hollow for the free and easy sprouting of the Seed.

A Fourth Way

IS, if opportunity does not answer a Person's Inclination of sowing the Acorn as soon as ripe; or that the Ground is too wet and low for venturing them at that time of the Year; then the Owner may lay them in dry Sand upon a Layer of that, then a Layer of Acorns, and so on in a Tub, Barrel, or Room, which will stop the Acorns Growth, and make it fit for sowing in *February* or *March*, in a true fine Tilth and well drefs'd Ground. In this Case a Method ought to be adapted to the Nature of the Soil and Situation of the Place; and therefore on such a wet, low Earth, broad Lands are very improper to sow the Acorn in, because the Wets would chill and stunt the young Oaks, and hinder them from ever attaining a proper Bulk and Stature: For which reason, when the Ground is in true Order, and in broad Lands, either with the Foot or Wheel Plough, make a Stitch or Ridge at a Bout, and strain in the Acorns by a Man's Hand in two Thoroughs a little distance in the Stitch; then run the Plough between, which will make a Hollow or Henting that covers and fills in both the Thoroughs at once; and so on after this way throughout the Field; leaving between each Stitch or Ridge

Ridge three, six, or more whole Feet of whole Ground that is not to be medled with. This high sowing on a Stitch will very much contribute to the preservation of the Acorn, against the damage of Wets and Chills, that in many Grounds is the bane of all things that grow therein.

Remarks on the Fourth METHOD.

AS the Acorns are sown in Stitches, or Ridges, at no greater Distance than what is necessary for the spread of the Oaks Roots, there should nothing else be suffered to grow but them, and this may be done by the Interspaces being kept clean with Hoes, and then the young Trees will have a great Advantage by this high sowing; because many of their Roots will run almost level with the Ground, and be better watered by the Rains Descension from the top and sides of the Stitches; so that here will be nothing more to do; than looking after their Bodies and keeping them from Moss, the growth of Side-Shoots, and thinning them where they are too thick. I have planted several Apple Trees in my Orchard in Stitches, that by this means grow as fast again as those in the Levels. At *Leyburn* in the Vale, I have also seen a fine Apple Orchard, that because the Ground was flat and wettish, they planted the Trees on high Ridges made by the Foot Plough, by ridging up four or six Foot broad of Earth. So likewise either in the Vale or Chiltern may Oaken Sets be planted on these Ridges, alone, or with Sallow Sets or Cuttings, &c.

A Fifth Way.

AT *Potten-End*, about two Miles from me, (I am told by a Person now living that saw it) there was, about forty Years ago, half an Acre of Land sowed with most sorts of Seeds of Wood, that the Owner could get, amongst which were Hazel Nuts; these invited the Boys as carefully to carry them off, as he brought them on; which Accident so instamp'd the Transaction on the Memory of those that were Gatherers of the Nuts at that time, as caused them to remember the Matter (as they say) truly well. And there is now on the same Piece of Ground, good Oaks, Beech, Ash, &c. that grow very well from the Persons harrowing all the Seeds in, which as soon as done, he sowed Hens Dung all over the same, that by the Winter Rains was washed in before the next Summer: This Method was attended with great Success, for the Fowl Dung made the Seeds push up and run vigorously, so that they overcame the Weeds and made their Progress, without their hindrance.

Remarks on the Fifth METHOD.

THIS way is full Sowing and full Dressing at one and the same time, which admits of no other Improvement, than cleaning, fencing in, pulling off the lateral Shoots as they appear, and thinning where they are too thick.

A Sixth Way.

THERE is in my Neighbourhood a Man that the Farmers in general allow to understand Country Affairs very well, and is often employed in Wood Work, who says, that if a Piece of Ground is designed for a Wood of Oak, there is not (in his Opinion) a better way to obtain it, than to plough, dung, and let it run over with wild Grass and Weeds, which it will do in one Summer, and at the End thereof, about *Allbollantide* or sooner, to sow one Bushel of Acorns, or more broad Cast on each Acre thereof; and do nothing more than fence in the Ground from damage of Cattle, to have a Wood the quickest and in the best manner of all others --- his Reasons for so doing are these, *viz.*

First, this Grass and Weeds, by its large Burthen, will cause a great Hollowness on the Surface of the Ground, which by its dying on the same, becomes one of the best Manures, not only by helping to keep in the Spirit of the Earth, which all Shades certainly contribute too, but returns saline, nitrous, and sulphurous Qualities back again, by the Dung and Dressing this rotted Fogg makes, and thereby brings the Ground under a gradual Fermentation, and hollow, spongy Texture of Parts, as is most evidently felt by the soft, hollow Tread of ones Foot in woody Grounds; or where a good Crop of Peas, or other Stover in great Quantities has been taken off.

Secondly, That this and all Ground has such a Suction and Attraction inherent to its Nature (as being the Mother of all Things) as will eagerly draw all sorts of Seeds into its Surface; and therefore it is, that the Earth freely receives and shel-

ters the Acorn, so that it will lie in this loose, mellow, moist, warm Earth; and by next Summer grow with great Vigour, and be defended from the Damage of Droughts by the Cover of this Grass and Fogg; which by yearly consuming on the Ground, becomes a yearly Dressing to the young Oaks, and will push them on with great Fertility.

Remarks on the Sixth METHOD.

I Can't say, but this way has a probability of Success attending it, by reason it is so near that of Nature; for in a four Acre Meadow of my own, adjoining to my House, there were reckoned by the Mowers to be two Hundred young Oaks, about six Inches long, that spontaneously grow up from the Acorns that were brought there by the greatest Artists in the World, the Fowls and Mice; who made this Piece of Ground their Rendezvous to feed on the Acorns, that they collected and brought from the adjacent Woods. My number are fifteen inclosed Fields, consisting of Meadows and ploughed Grounds, nine others I rent of our Parson: Now in all the Wheat and Meadow Fields, I believe I may say, there were growing this Summer, 1732, many young Oaks from the Acorns that Birds and Mice brought on the Ground, from Trees that the Year before were almost full of them; by which it appears, that the Fowls and Mice are the first Bringers on, and Sowers of the Acorns in the Meadows and ploughed Grounds; because its Body being a large Solid, cannot be supposed to be scattered over such Grounds by the Wind; and why the Meadow, or any other smooth ploughed Ground

Ground should have a greater share of this Seed, than the rough, clotty Land, is easily accounted for: because here is smooth walking, and easier Access to each others Company, which is agreeable to Fowls as well as Beasts; and here is the Place that they are best acquainted with, from their usual frequenting at other times in the Year, in quest of Worms, Snails, &c. which in the rough Grounds cannot be so pleasant, because they there must look before they step, and so lose in a great Measure their Enjoyment in feeding on this delicious Food, which they are always most pleased with, when they can eat it in an unobstructed Piece of Ground: Here it is then that they scatter this Seed, and sometimes leave it on the same by way of Magazine, and Provision against their next Hunger; and sometimes they bring to these Places Branches of Acorns which are not always all eaten; at other times they are suddenly scattered and frightened from the Spot of Ground, which in their precipitated Fright causes them to leave and forget the Acorns they lately brought, and that chiefly by the Rook, Crow and Jay: The Rook upon this Account is the busiest, and most common Fowl of all others, by reason of their greater Numbers; and it is disputed by some, whether they don't bring several Acorns in that Bag which generally hangs under the old ones Throat, and disgorge them as Pigeons do Peas and Beans at their Pleasure: We are very sensible they bring Worms and Water in this Bag, to feed their young Ones with; and nothing but the bigness of the Acorn makes us doubt their not doing so by this, in order to make their Hoards at the bottom of a Furze-bush, and other Places which the Furze-men often find, as well as Walnuts that the Rooks thrust in with their Beaks; by which means, are the

the many young Oaks seen on Commons, that are cut down when the Furzens are, by the Strokes of their Two-handed long Bills; for it often happens that a great deal of this Seed is envelop'd and covered by the Moss and Grass, that the hollow Earth in ploughed Grounds will readily and naturally receive, nourish, and cause the same to strike its Radicle into it; where, at that time of the Year, it has more than ordinary Encouragement to grow, because the Rains and Dews are moderate, and the Ground about *Michaelmas* time under a fertile, bearing State; and by thus getting Root easily, it secures it self against the Violence of the Winter Frosts and Wets. It is common about *Marlow* in *Berkshire* for the Boys to follow the Rooks, to get the Walnuts they bring and leave on the Grounds there. Also in the Grove Meadows, a Mile below *Ivinghoe*, a Plough-man told me he had ploughed up great Numbers of Acorns, and Walnuts this Summer, 1732. when he turned up the Ant-hills with the long, wide Sharr'd foot Plough; these he concluded were brought thither by the Rooks, who feed on them there for their greater Safety and Repose; and those that were left, were carried away by the Mice, for their Winter Provision; for the Rook is a subtle Fowl, and will strip a Walnut Tree in a little Time, and will hoard them, as knowing they will be soon depriv'd of that opportunity, by their being gathered; and so of the Acorn, I have seen them rid a Tree presently by their great Numbers.

Hence it is, that I infer, that a Meadow or prepared Ploughed Ground, that lies at a small distance from a Wood of Oak, and in an undisturbed Situation, may possibly have considerable Numbers of young Oaks grow on the same, besides what are produced

produced by sowed Acorns and planted Sets, merely by the Fowls bringing the Acorns, and feeding on them there, in a plentiful Mast Year. And if this Field, or Piece of Ground, lies in reach of the Wind's Power, by which they may be conveyed from some neighbouring Wood, Hedges or single Trees, then will there be as numerous an Issue by Ashen Keys, and Gollins of Sallows, Asps, and white Wood, as will quickly compleat this intended Wood, and out-do the very next Field that was sowed or set too deep. But I would here be understood, that I am not a direct Votary for any certain Strefs to be laid on this Method of encreasing a Wood of Oak, Beech, Ash, Sallow, &c. only to shew the possibility and probability of augmenting one by Fowls, Mice, and Winds; for it may be depended on, that sowing and Planting the Acorn and Set, is much the surer way.

The Seventh WAY.

IN some part of *Hampshire* I have been credibly informed that it has been the Practice of some, to plant a piece of Ground with young Oaken Trees, as being thought to be the quickest way of all others to get a Wood; but then this Method is confined only to the Power of those who are Owners of a Wood already, or at least but to few others; and then they dig and take up a young Oak, perhaps of four, five, six or eight Foot high, with such a Ball or Parcel of Earth, as when carefully carried and transplanted with the Roots in it, and put into Holes duly prepared before-hand, will grow, flourish, and come to perfection much sooner than the small Set or Acorn; and by losing Part, or all of its Tap-root, will commence its new Growth horizontally, and get its Nourishment from the very best Part of the Ground, I mean the Sur-

Surface; and this Work should be done in *October*, as the very best time in the whole Year; or in Frosty Weather, by digging some time before about the young Oak, and as soon as the Earth is hard Frozen about its Roots, then take up the Tree and that together, and carry it on a Sledge, or other Carriage, to the Place designed, and stake or fence it up very well, as directed for the Beech; thus an Oaken Wood may sooner than ordinary be brought into a State of Perfection.

The latter End of *November*, 1732. was the first Frost that happened this Winter, when several Firr Trees, I believe twenty Feet high, and eight Inches diameter in Body, were transplanted in this manner, on a Common near me, with a Beech at every ten Foot distance between them, for covering the View of an old House that stood at the End of a Visto; the Turf was first pared off, and the under Mould loosened; on this they planted the Trees, and mounded them up with Turf they pared off, about the Place, which was sufficient with the Earth they brought with the Trees Roots; putting at the same time, Wheat-straw between the layings on of the Turf, to keep the Frosts off in Winter, and the Drought of the Sun and Air in Summer; after this, they staked each Tree with four Poles, of about ten Foot long.



C H A P. VII.

The Nature, and Improvement of the BEECH.

THE white, or silver Beech is the most common in these Parts, where we abound in Mountains and hilly Grounds of Chalks, Clays, Gra-

Gravels and Loams, which make considerable returns of Profit to their Owners in the Growth of this most valuable Tree: 'Tis this Tree that makes many Parts of *England* happy in its Productions, and chiefly because it will grow on the Sides and steep Declivities of chalky Hills, where no other Timber will thrive so well; as may be seen in that long Chain of high Grounds, that runs from *Dunstable* to near *Wallingford*, which is above twenty Miles to the Westward, and lies mostly contiguous to the fertile Vale of *Ailesbury*.

The Black-grain'd or Black-bark'd Beech, whose Wood is of a longer Duration, will thrive, and make its plentiful Returns of Wood, and Mast in the Flats and Levels of this our Chiltern Country; and to speak more general, they both answer so well in any of these Grounds, that I don't perceive any regard is had to the particular Species of the Beech in sowing the Mast, or making Plantations by Sets. But it is certain, that neither sort of Beech will grow to any purpose in the large Vale of *Ailesbury*, or in any wet, moorish Ground; yet will thrive very fast, and to a monstrous Size, in our Loams, Clays, and chalky Grounds, &c. in the Chiltern; insomuch, that I knew one fell'd in *Ashridge* Park that had one hundred fifty seven Foot of Timber in it, besides twenty one Stack of Fire-wood Billet, nine Stack of Roots, and three Hundred of Faggots. Where also may now be seen great Numbers of very large Beech Trees, as being accounted by good Judges, one of the best wooded Parks in *England*. This utterly confutes what a modern Author says, That wherever the Oak thrives the Beech will, and that they delight very much to grow together ---- Whereas some of the greatest Oaks have, and do flourish in this Vale, that refuses Entertainment to

the Beech, notwithstanding the many Attempts that have been made by several to obtain their Growth there; particularly by Sir *Thomas Leigh*, the present Representative for *Ailesbury*, by their sowing the Mast, and planting young Beeches amongst, or near their Oaks, within a few Miles of that Town, but to no purpose; for the Beech will never make a good Tree in their vale, spewey, and wet Soil; nor will the Oak, nor indeed any other Timber Tree, grow to any profit in chalky Grounds; which obliged our Fore-fathers, as well as those of the present Age, to set the Sides of their chalky Hills, &c. with Beech-mast, where this Tree will run up to a vast height with great Expedition; as may be seen on that worthy Gentleman's Estate, *John Duncombe, Esq;* at *Barly-End*, near me: Nor can I be of Opinion, that the Oak and Beech grow best together; but on the contrary, I believe them best in their own Company, because the Beech grows too fast for the Oak's Pace; and as if nature delighted herself with the entire Growth of each sort, it generally happens in our Chiltern, that where a Wood of Oak has been fell'd, a Wood of Beech has spontaneously succeeded; and when this has once got Dominion, it will be sure always to remain Master. This very Case has happen'd to Sir *William Stanhope's* Wood, about twenty Years ago, within a Quarter of a Mile of my House, called *The Great Hoo*, where the young Beeches grow so fast in the room of the Oaks, that it is thought, they will be fit to fell about twenty Years hence.

This Tree furnishes Boards for Out-sides of Barns, Floors of Chambers, and for Threshing, Wood for Fellows of Wheels, Frames for Chairs, Ship and Mill-wright, Turners of hollow Ware, and even for Wainscot: In the Water this Wood is said to lie Hundreds of Years without decay, which

which makes it so serviceable in Mill-work, &c. that they have chiefly by these Means proved it Timber, which formerly in many Places was deem'd otherwise, particularly in *Hertfordshire*. A famous Instance of which, happened between ----- *Uxley*, Esq; Defendant, and the Rev. Mr. *Biby* of *Carrington*, Plaintiff, about the Year 1725; the Contest was some time before the Barons of the *Exchequer*, but was at last given in Favour of the Defendant, on Account of its Timber Uses in Mill-work, Keels of Ships, and in House-building, &c. so that in *Hertfordshire* it is now deem'd Timber, as well as before this Tryal it was in *Bucks* after twenty Years old, and then Tythe free; but if any Beech is fell'd, and another from the same grows up, this is to be Tythed whenever it is cut down.

Of the Sap of BEECH, and how to get it out.

THE Sap of this Tree is more destructive to its Wood, than any other Timber sort whatsoever; therefore 'tis a useful Art how to get it out; for 'tis this Sap that breeds the Worm faster, and in more abundance than in any other, causing a swift Rot and other Misfortunes; which very material Point has not, as I know of, been yet wrote of by any Author; and it is so perfectly necessary, to get the Sap out of the Beech by some Means or other, before the Wainscot Boards or Planks, &c. are made use of; that otherwise they will bulge out and in for many Years, as the Weather is moist or dry; and so it will in Flooring-boards, notwithstanding they are nailed down ever so fast; as I have proved in a Garret-floor of my own, which unfortunately fired by a Neighbour's House, but several of the Beechen-boards were preserved and laid down again, since which

they never stirred: Therefore if Sap could be got out, I doubt not but they would lie as well as other Boards, as plainly appears by these of mine that were scorch'd, and the Sap burnt out: But in the two Inch Plank for Barn Flooring, where they are drove down with wooden Pins, they may lie well enough for many Years; if immediately after sawing they are thrown into a Pond or River, and there let lye four or five Months, after which they must be thoroughly dried and layed twice. The Practice of an old Carpenter by me, is, to cut this Tree down in Winter, and let it lie on the Ground two Years, till the Wood begins to be spotted or motled; then he cuts it into Planks or Boards, and soaks them in fresh Water; but if a Person had the Conveniency of salt Water, I should think that would be much better: By this time, he says, the Sap is so deadned and hardned, that the Worm cannot breed so soon, nor so much in it; and has himself some in good Order now, that were laid above thirty Years ago as Flooring boards; for which use, thirteen are commonly saved of solid Timber a Foot broad, but more for Barn-sides, because the thinner the Board, the less Power the Worm has.

A Second Way.

MAY be made use of in the smaller sort of Beech Trees, whose Bodies do not exceed twelve or fourteen Inches thick; that first should be hewn and squar'd, and Mortaises made ready for Plates, Chimney Pieces, and also for Somer and Joys, &c. then they may be lain in length and supported at each End, so that four, five or six together may lie even and close together, about a Foot or two higher than the Ground; under these may Furzen, Fern, Straw, Shavings,
or

or Faggots be put to burn all their Out-Sides till they have a thin, black Crust; this will so embitter the Wood, and roast out its Sap, that there will be but small Encouragement left for the Worm to lodge and breed; because the Worm undoubtedly has a Taste, tho' an Insect, and therefore will consequently leave the tainted Wood, or die in it, and be prevented afterwards by this Extraction of the Sap, which is the prime Cause of their first Encrease. These Somers and Joysts will lie very well next a Fire, and where their Ends do not rest on damp Walls; but be they any where, their Ends should first be dipt in melted Pitch, as a Preservative; I know of two Houses that now have Somers and Joysts of this Wood, in one they have lain fifty Years, as the Tenant says, and the other thirty.

A Third Way.

ACCORDING to the modern Practice, and indeed far the best it is, instead of cutting this Tree down in Winter, as the usual way has been, to fell it about a Fortnight after *Midsummer*, when it is reckoned in full Sap, or in its most flourishing State; for that then its Juices are at the thinnest, and strongly employed in Branches, Leaves and Fruit; and then it is, the Body has the least Share of Sap in it; therefore it will be much more run out, exhausted and dried away by the Sun's Heat, than if fallen in Winter: Now the Benefit of this entire new Method is not a little, for it has been proved, that the Wood of a Beech Tree so felled, has endured much longer sound, than that cut down in Winter; the Tryal was by letting both these Trees lie on the Ground in the open Weather; and in very few Years the Winter Tree was worm-eaten, and began to rot,
when

when the other remain'd clear and sound; so that the very best way of all that is practised in my Knowledge, is to fell this Tree in Summer, and let it lie one Year abroad with the Rind on, sometimes turning it; and then saw it into Boards or Planks, which must be laid in a Pond or River, three, four or five Months, till the Sap is soaked or washed out: This will keep the Boards from warping in a great Measure, and cause them to endure forty or fifty Years on Floors, and against the Sides of Barns, &c. As to Capt. Cumberland's Method (for which he has a Patent) of extracting the Sap out of Planks for Ship-building, by sweating them in hot Sand; I can't see how it answers, because I have not seen the Experience of it; But the Trencher-maker is so cautious of getting the Sap out of this Wood, that as soon as he has cut them out rough, he throws them into boiling Water, which directly brings out the Sap, and then they'll keep their white Colour, and be more free from the Worm; which otherwise would in a Month or two eat through their thin Substance.

Of the Management of the BEECH, in Timber Uses, &c.

THE best experienc'd Method, then, is to fell it in Summer, and saw it but directly for Timber use; for that a Tree so cut into Pieces, is brought under the Power of the Air much more and sooner than when in one round Body; and then must be carefully preserved from the Sun and Wet under Cover; where the Sap will be sooner dried out, the Colour kept in, the Wood hardened, and the Worm greatly prevented; for 'tis certain the Sap of a Tree is in two different States in a Year: In Summer, a fluid, aqueous Body, rarefied by Heat; in Winter, a glutinous Consistence, densified

fied by Cold, which has caused different Opinions about its Circulation: One Author asserting it to ascend and descend gradually all over the Tree, as the Blood moves in the Body of Animals: Another, that the Sap in the North-side is not always so thin as that in the South, and therefore denies it that Regularity; and I have heard a Workman in this Wood say, that that Part of the Tree that stood to the South-east Aspect, rended or split more firm and free, than the other contrary Sides; But however that be, 'tis allowed, that the Sap is the immediate Cause of the Worms breeding; which being of a moist Nature, all Dryness is an Enemy to it, and by consequence, a Conservation of its Wood. In the late great Fire at *Ailesbury*, there were some Timber Plates saved, that had lain sixty Years in one of the Houses there, and shewn by an old Carpenter as thorough sound Beech. So great a Friend is Cover and Dryness to this Wood, as has been obvious in a Chair that was made of it, which usually was kept by the Fire, and is now in good Order at above thirty Years Old; when others that stood in a more dampish Place, rotted in seven Year. To avoid then the pernicious Effects of Dampness, that suddenly helps the Sap in the production of the Worm and Rot; I here caution every one concern'd in laying a Barn Floor with this sort of Wood, that they do not lay the Planks too near the Ground; if they do, they will surely rot in less than seven Years time; therefore the best Remedy is to lay them on Somer and Joists, about a Foot or two from the Ground; for nothing decays it faster than to let it lie wet and dry; several Farmers of late have laid it thus, dry and high, and yet have an easy Passage with their Cart or Waggon into the Barn, by a Rising made of Boards, with cross Ledges nail'd on the same, to stop the Horses Feet,
like

like that by which Horses and Coaches get into Ferry Boats; or by a rising Ground made on purpose for this Occasion. Now there are two ways of laying these Planks to Thresh on, to hinder their opening at the Joints (which they are apt to do though laid twice) and letting the Corn through; one Way is, to lay one Plank a little over the other at Bottom, but this loses too much of it; the other is to make a Groove in each Plank, and put in a Slip of Wood, like a Lath, which the Carpenters call Tongueing it; some also saw the Boards of Beech Feather-edg'd for the Sides of Barns, as believing they best carry off the Water this way. The Price of this Timber here, is six Pence the solid Foot: The Boards seven Shillings and six Pence a Hundred, and the Planks for Threshing Floors, two Pence Half-penny a Foot, both superficial Measure.

Of the Seed, or Mast of the BEECH.

THE Beech excells all other Trees in Parks, &c. for the Returns it makes of prodigious Quantities of sweet, healthful Mast, which greatly helps to subsist the red and fallow Deer, sometimes for most part of the Winter, as I have seen in that of *Asbridge*, near my House, which is seven Miles about, and contains twelve or fourteen Thousand Head of both sorts. The express'd Oyl of this Mast, I have thought very pleasant to my Taste, and near as good as that of Olive, and is said to yield two Gallons from one Bushel; then if one Hundred and Eight Trees on an Acre, at twenty Foot distance, were to afford five Bushels on each (instead of fifty as some reckon) that would amount to five Hundred and Forty Bushels, which, according to this Calculation, will produce one Thousand and Eighty Gallons of Oyl, that

that may very well be allowed worth three Shillings *per* Gallon; and if only out of that Sum, one Shilling was to come clear to the Owner, what an immense Profit must here be to those that have great Numbers of Acres of this Wood, besides the Benefit of the Timber's Growth; nor is the Hulls without their Value, for of this the Poor sweep up great Store for their Winter Firing; and when the Mast happens to be plentiful (which commonly is every second or third Year) we Farmers generally get our Hogs almost half fatted, before we put them up for Bacon. The Leaves, if gathered before the Frost, and about the time of their Fall, make the best of Mattresses to lie under a Feather Bed, or otherwise, that will continue sweet seven or eight Years, by their Tenderneſs and loose Lying; so that the Wood and Leaves make both House and Bed, and the former the best of Firing; of which I have sent several Stacks to Mr. Roger Williams, at his House in St. James's Street, who makes a great Consumption thereof.

To raise a BEECH Wood from Seeds or Sets.

THE Beech by its large Bud, discovers to the Country-man about *Christmas*, that there will be a probability of a Mast Season the succeeding Summer; and when the Bloom out of this Bud shews shews it self, as it will sometimes near an Inch long, with a sort of rough Head, somewhat like a Golling; it is then a Confirmation, if the Extremity of Weather does not destroy it. Beeches are best raised from their Mast, which are usually ripe some time in *October* or *November*, when they should be gathered and directly sown, on Ground that has before been sufficiently Ploughed into a fineness, and duly manured: But if this Work is deferred till the Spring, then the Seed

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must

must be laid in dried Sand, and not into that which is wet or damp; for then their Radicles will be in Danger of Sprouting before the sowing Season comes on, and that is when the great Frosts and Colds are mostly over, which happens sometimes in *February*. This Seed differs from all other Timber sorts, in that it comes first up with the Seed on its Head, opening in two Parts like a Kidney-bean, then succeed two Leaves, and so proceeds; 'tis therefore that this Seed must be ordered accordingly, for as it is obliged to make its way out of its native Mould, under the disadvantage of such a large open Head, it requires a light, hollow Earth, wherein this Seed is sown, otherwise it will lie and rot, as not being able to make its way through; so that to sow it in a stiff, clotty Soil, or to plough it in under thorough, or to set it deep, is downright burying it, to the Owner's loss and disappointment: And as this Description of the Seed, and Caution of its first Management, has been wanting in all Authors I ever met with; I shall therefore advise my Reader to sow two Bushels of this in its Hull, or without, on an Acre, broad Cast, on broad Lands, well harrowed in both ways, on such Ground, and at such time as is before directed; so that I shall not further enlarge on this Particular, because what I have writ of the Acorn may suffice, in shewing the further ordering of this; I only shall add, notwithstanding all that is, or can be said of the several Methods to get a Wood, either of Oak, Beech, Ash, and many others, yet is there none so perfect and genuine as that which is raised directly from the Seed; because no transplanted Set or Tree can possibly be taken from one, and replanted in another Earth, without Violence done to some of its fine Capillary Roots, which has been the Occasion of many ill Consequences, too long here to enumerate; and

and therefore the Second-hand Way is only to be made use of, where the first can't conveniently be done; for 'tis obvious to common Reason, that the Root of any Tree has the most propitious Opportunity of making its gradual Growth from its Radicle or Sprout, that never afterwards meets with Opposition as transplanted ones do, that are not naturalized to the Ground, which is the Cause that their genial Roots push with more vigour, grow stronger, and stand in need of less Watering, than the replanted ones do; nor do I believe a Tree will be so good Timber, as that raised on the Spot from its Seed; and for ought I know it may be the real Reason, why the Elm that is generally transplanted, is often a more shaken and shattered Tree in its Body, than any of the Timber sort are. In that Part of the Country, remote from Woods of Beech, the Mast of this Tree may be transplanted, where it may be sown either in their Fields as aforesaid, or in their Nursery-beds, in shallow Drills well manured, as we do the *French Bean*; and this either in *October* or *February*, and afterwards transplanted into another Bed, at a Foot asunder, till they are of such a bigness as is desired, to plant out for good in a Hedge or Field: However, as I am now Writing from a woody Country, where Beechen Sets may be had in many Places; I shall enlarge on the Propagation thereof, as being made use of by many here as the readiest Way, particularly to raise Hedges with. In our Woods of Beech, arise spontaneously great Numbers of young Shoots, which about *October* (for that is the very best time) may easily be drawn by a Man's Hand, especially if great Rains have lately fell before; these, I say, may be had of any Size, but the best in my Opinion are those of two Foot long, for then the Set has commonly a good Root, which a smaller one has not; these

must not have their Tops cut off, for then they will not grow, as several have experienc'd, that would not be convinc'd, till Tryal warranted the Truth; and of this, Authors have hitherto been deficient in their Writings, but the Side-branches ought not to be cut off, till they are at a sufficient Height, and not then close to the Body; for the Beech either in Set or Tree, does not agree with the Edge-tool, like some others: This Order then to obtain a Wood by Transplantation, I propose to perform two several ways: First, let the Ground be well fenced, ploughed, and manured in broad Lands; then on this level Earth run a Line cross the Field, and at every ten or twenty Foot distance, plant one or more of these Sets on the Surface, and mould it up with a Border, putting a little Fern between, and some on the top, leaving a small Hollowness or Dish about the Root, in the manner Cucumbers are set in a Garden, for the Water the better to descend to the Root; and when one Row is done, then move the Line to ten or twenty Foot further, and so on; these may be kept watered and hoe'd, according to the Pleasure of the Owner, and artificial or natural Grass, enjoy'd in the Interspaces, &c. Secondly, by the Plough, the Ground may be so gathered into a four Thorough'd-stitch or Ridge, and on that may be made a Thorough or Gutter, by drawing the Plough once through the upper Part of it; in this may be planted at every ten or twenty Foot distance a young Beech, and the rest of the Stitch fill'd up in a Row with Sets of Hazel, Sallow, and other Underwood, but so that each Beech must be planted in one Row, against the middle Vacancy in the other Row that is to be at six Foot distance; this way will give an Opportunity to keep the Interspaces, as I have said before, clean, that the Roots may not be impeded
by

by Weeds, and thereby better watered by the Descent of the Land between the Rows, as may be seen at Sir *Thomas Seabright's* Grounds near *Market-Street*; by this Method, the Trees and Underwood are also better preserved against Thieves; for here a cut Stick may be easily missed, when those planted promiscuously are difficult of Discovery, which has so encouraged this sort of Rapine, that I have seen a young Beech of I believe twenty Years old, that was cut down, the Stump daub'd over with Dirt, and was carrying away on a Fellow's Shoulder, when I met him in the Wood.

Of the Transplanting large Trees.

ON Commons, in Parks and other Places where the Mast can't be sown, nor the Set commodiously planted, then a Beech of seven or eight Foot high, and three or six Inches Diameter is best, which to do, the Method that is set down for young Oaks will answer here: There are several of these planted on our Green, with the upper Part of their Heads on, and only their Side-shoots trim'd up, with one great Stake drove into the Ground and fastened with a Band to its Body, and then bush'd up very well all round and high; these stand on a Bank, but if they are to be planted on Chalks, then a Hole must be first dug, and good Mould put in it.

Observations on TRANSPLANTING.

WHERE an old Beech has been felled, in order to raise another from the Shoot, that might spontaneously get up from the same Place, there has been several Pomes of Palding brought upon the Spot of Ground to enclose it:
But

But it has been found by Experience in many Instances of various Kinds, that there are several sorts of Juices or Qualities in the Earth, with which it is impregnated by the original Creator, for the Nourishment of the many sorts of Species that grow therein, each particular having a Power to extract and imbibe the same, after his inherent Nature, peculiar to the Mode and Texture of its Parts, which has been evidently proved, both in Trees, Corn, and Grass; for where an Oak, Beech, or Ash has been fell'd, and another suffered to succeed in the same Place, by a Shoot from the old Root, or another of the same Kind transplanted in its Place; it will either be defective in its Growth, or else not grow at all, as is obvious in some of mine and others Grounds; several of which sort I have cut down, and what most of our Country Carpenters are apprised of, when they look at the bottom of the Tree; therefore when one sort has been fell'd, the Root ought to be extirpated, and one of another Specie planted in its Room; and this Nature it self dictates to us, according to what happened to my next Neighbour, who planted a young Apple Tree where an old one had been felled, but it grew so slow, as provoked him to take it up, and put a standard Pear Tree in its Room, which now flourishes to his Satisfaction: The very same Reason accounts for the sowing of Corn and Grass; if Wheat directly follows Wheat, and a Crop of Barley or Oats succeeds one and the same sort of Grain; or if Clover was to follow Clover, they would certainly degenerate in a Degree, and prove a loss both of Cost and Time; which is the very Cause why the Farmers in general find a Benefit in sending some Miles for different Seed; and 'tis as certain, where an old Beech has been cut down, that the Ground about it is so

impoverish'd by its long living in its Juices, as to make it barren to a Successor of its own kind.

To raise a BEECH Hedge by Mafts or Sets.

BY Mast, either in the Month of *October*, or in *February*, or *March*, it may be sown in a Drill, almost close to each other, and then the Earth covered lightly on the same, and over that some Horse-litter to defend them from the Frost and Sun, but not in too great a Quantity: This I suppose to be done in a Bank of Mould, thrown up by making a Ditch of two Foot deep, and as much wide. But our common Method here is, to raise a Hedge by Sets, which is the quicker and readier Way; for of late it has been discovered, that no Wood makes so strong and profitable a Fence on Chalky Grounds as the Beech, because this will grow and flourish there when others will not. It was about the Year 1718, that I planted above fifty Poles of Ground with Sets, and was esteemed by proper Judges to be as fine a Hedge as ever they saw; for it was in some Parts of it eight Foot high, and so much Wood in it, as encourag'd me to make it last Winter, 1731. by plaishing it down. When I first begun making it, I proceeded thus, *viz.* as I threw up my first Spit of Mould, I planted my Sets of about two Foot long in the same, and so went on, planting them in a single Row, as near together as their Roots would allow me; on these I threw the rest of the Mould that come out of the Ditch, but in doing it, I observed with a great deal of Care, to lay, chamber, and spread their Roots, so that the Fibres might not touch one another, but be kept asunder by the fresh Mould that was lay'd between and upon them, by which the Roots are bedded, and grew some time single in Virgin Mould, as is the Nature of the first Spit; and when the second

was

was laid on, some Horse-litter should have been put between the Mould on the top, to keep the Frost off, or the Sun from drying their Roots the succeeding Summer. In this Hedge I planted several white Thorn Sets, and both Sorts grew very well, having the two great Advantages of untry'd Earth, and a Ditch to receive the young Roots; the former by its rich nitrous Quality, and the latter by shading, and watering the new spreading Fibres. I also took care to pull up my Sets in an adjacent Wood, in a moist time, for then so much Mould kept to their Roots, as to secure them from being dry, which I presently transplanted (I think) in *October*, as the best Time in the whole Year; for then the Severities of Winter not being come on, the Roots directly struck into the Ground a little, and thereby were capable of defending themselves against the Extremities of Frosts and Colds. Sheep, nor any other Cattle must have Access to them, the first two or three Years; for if they have, it's very likely they will destroy them, by their biting the Top or Side-shoots, or else to rub them with their Oily Wool, as to venom and impede their Growth; and these are not only an Enemy to the Beech, but indeed to all sorts of Vegetables in their Youth, from the Oak to the Shrub; and ought more than ordinary to be prevented here, because these being of the Tree kind, instead of running expeditiously upright, will get a brousy, bushy Head, like the shrubby Sort, that now grows on *Wiggington* Common by *Tring*, occasion'd at first by the Cattles Bite, or the Peoples untimely Cutting, for here they have free Liberty at certain times so to do; and then the Beech makes not a quarter Return of Profit, as they will if they get high enough out of the Cattle's way with their Top-shoots: Upon this careful Management, while in
its

its Infancy, depends the After-success of a Beech Hedge; even as it is with a Colt, who is check'd by being work'd too soon, will be shackled-ham'd, stunted, and complain ever after; so will this, if bit at top, or made too soon, before the Stems have Strength to endure the Chop of the Bill, and the violent Bendings of part of their Bodies by Plashing down; nor will this Sort of Wood rightly endure making in frosty Weather, when by the Cut of the Tool, it will fly from its Stem, caused by the Saps being frozen into a glassy brittle Substance; and also because the Beech is more spalt and short in it self than many others be. By *Dunstable Downs*, there was a beechen Hedge set about ten Years ago, but a great many died for these two Reasons: First, they planted them too late, that the Drought overtook them upon the dry Chalk: Secondly, They threw too much Earth upon their Roots, insomuch that it kept off the nourishing Rains from coming at them in due Season, and also much of the Sun's Heat, as was necessary to make the Rain more healthful to them; so that this lies in the Discretion of the Planter, who, to avoid Extrems, must endeavour to lay on such a quantity of Mould, as will in a medium Way let both Rain and Sun in. This Beech Hedge will also prosper in Clays, Loams, and Gravels, and in most other Soils, except in wet, marshy and low, vale Grounds; here indeed the Aquatick claims the best Pretension, as out-doing all others in quickness of Growth. I am very sensible of the two Objections against a Beech Hedge; the first is, that after its first making, it will not grow so fast as others, as hating to be check'd of its Tree Growth. To this I answer, That considering it will grow on a Chalk, where nothing else will thrive so well, it ought to be preferr'd. Secondly, That as it is

of the Timber Tribe, it is apt to start and bulge out in its Plaishes, and so become hollow, that Sheep may get in. To this I answer, That it is true, as it is of the Tree sort, it is apt to get out of the Course its Plaishes were first laid in ; but when this Hedge is made by a judicious Hand, it will in a great measure be prevented, by observing that these Plaishes are not left too thick in Substance, where the Chop or Bend is made, for if they are, then by its Strength it will raise it self up ; but when at the Cut or Bend of the Plaish, it is left thin and slenderer than generally other Wood is, it will lie in its due Order ; and if white Thorn is made every second Plant, it will so fill up any Hollowness that may happen on this Account, as to prevent those Inconveniences ; and if the Owner thinks fit to let any Master-plant stand to become a Tree, he has here that Opportunity, by singling them out, and letting them keep their Tree Growth. Before I conclude this Chapter, I have only this to hint, that a Carpenter who was to lay an Oaken-thrashing Floor, put half the Planks into Water, two or three Weeks to soak out their Sap, and then laid one that was not wetted near to another that was, to prove the difference ; it happened that at fifteen Years end, that the soaked ones were as sound as at first, when the others were very much rotted.



C H A P. VIII.

The Nature, and Improvement of the E L M.

THE two sorts of Elm I here write of, is the common Elm, and the witch Elm, without taking further Notice of the *Dutch*, than that it is inferiour to both these in its Returns of Value; or of the Seed of this Tree, which is so much disputed by Virtuoso's, otherways than what it is allowed by some of our observing Country Farmers, to fall from the Tree somewhat like a Butterfly's Wing in *April* or *May*. But as I never knew it practised, to raise Elms by Seed, I shall insist on the common Method of propagating them by Sets, and transplanted young Trees.

These Sets are generally got out of Hedges or other Places, from the Bottoms and Sides of the Elms, but better and in more abundance after an old Tree has been lately fell'd; which should be drawn very carefully in wet Weather in *October*, when the Mould about them is in a loose Condition; for then it is we have the best Opportunity, without forcing or straining their Roots, which certainly is a great Hindrance to their future Growth, and not only this, but all other Vegetables whatsoever suffer upon this Account; and I have often seen the very Skin, or Rind of the young Roots left behind in drawing, and then they'll never grow, at least never make good Trees; so that where they can be dug up with the Spade or Mattock, and some Mould preserved about them, they are then in a true State of Transplantation

tation; and where they can only be had very small, they may be enlarged by planting them in a Nursery-Bed, a Foot asunder, in Rows two Foot distance, there to remain two or more Years, till their bigness answers your Pleasure; and then only to make use of the best rooted ones, whose Side-branches in the Nursery have been carefully Pruned from time to time, which gives the Root more Power to forward the Growth of the Body and single Head, than if there were a number of lateral Shoots; and next to this Caution, is another as necessary; that the small Fibres, or Roots of any Set must never be suffered to be dried before they are transplanted, lest it prove fatal to them; and this I ardently press, because I am sensible, the want of Care in this particular Article, has not only been the Ruin of many attempted Plantations, but has deterr'd others from the like laudable Design; and therefore in case the Sets are got at some distance, I advise the small Roots be directly soaped as soon as drawn, which will preserve their native Moisture in them, till they are again replaced in the Earth; or else to wrap them up in a Bundle of wet Straw, or in a Sack; the first of which ways will keep them in good Order, if sent by the Carrier one or two Hundred Miles.

This Wood in particular is so prone to grow, that if an Arm, or Piece of its Head, from four to fourteen Foot in Length is buried in a Ditch or Trench, well manured before-hand, and covered shallow with Mould, it will grow; provided it be done when the Leaves are coming out, for then the Sap will run into Shoots; and also, if a Place or two are left open in such a Piece for the Shoots to come out at, as we do to encrease our Sallows, &c. in Hedges and Woods.

But to be quicker in the Enjoyment of this Tree, young ones are often bought of the Nurse-

ry-men, seven or eight Foot high, and three Inches Diameter, more or less; or if they are as big again, they are better; which when well rooted, and safely transplanted according to Art, they will in about fifty Years time be at their full Perfection; to accomplish which, take the following Directions.

If this Tree is to be planted in a Hedge, it may at the making of it be put into the Ground, at ten or twenty Foot distance, or as near as you please, for of all Trees, I never saw so many grow so large, and flourish in a little Room as these will, even almost close together; as may be seen about those Grass Enclosures, at the bottom of *Ivinghoe* in *Bucks*; which fertile Property of the Elm, I take to be owing to its being kept under a narrow Head, that is more agreeable to this Tree than the Oak, Beech, or Ash, or by its natural growing so, or from its succulent, juicy Quality, with which it abounds more than any other Timber Tree; and if I am right, the Bark of this Tree is rougher, thicker, and more spongy than any other, which causes great Quantities of Water to lodge therein; for it is seldom seen that the Water runs down this Tree like another; and therefore 'tis probable, that the Elm receives a greater Share of Nourishment from the Rain, than any other Timber Tree doth; besides, as it is a Tree that bears no Fruit, its Sap is wholly expended in the Production of Wood and Leaves.

The Elm, as it affects a damp or wettish Soil, more than any of the Timber sort, its Wood is of a more spongy, soft and tough Nature, which makes it excel all others in Pipes, Pumps, and other Water Works; will lie two or three Years abroad, without suffering by Worm or Sun; and in that time, the Sap will become reddish like the Heart, which fits it the better for making Bowls,
and

and other hollow Ware, that will last longer of this Wood, and sell for more than either Beech or Ash; Dressers also, and Blocks of Elm, will not break away by Chops, nor will their Stocks in Wheels so soon crack and split, as other Wood will; it hardly refuses any Ground, for even in the moist, clayey Chalks, this will grow, but not in the dry, hurlucky Sort, and best in the black, moist Loams; on all loamy Clays, wettish Gravels and Sands, and in many low, watry Places. They are at this time much in Fashion, for making Avenues and Vistoes to Gentlemens Seats, where they will the best of any permit their Heads and Sides to be cut into diversity of Forms, which taking up but little Room in the Air, affords a fine, green and lasting Prospect; but the main Matter is to plant and preserve this Tree aright: To do which,

In case it is on a Grass Ground, pare off the Turf thinly, for two, three or four Foot diameter, more or less, as your Tree is in bigness; put that by it self, after this put the Turf the Grass-side downwards, all over the Bottom of the Foss, and the Mould over that: Upon this Surface plant and bed the Roots of the Tree; then bring more Mould, and raise a Border six, or twelve Inches high, according to the spread thereof, putting Horse-litter, or Fern between the upper Mould, and leave it dished or hollowed on the Top, and also some on the Top of the Border, all the next Summer to preserve its Roots from the too powerful Rays of the Sun, except the Tree is planted in a low, moist Ground; then indeed such top Cover may do more harm than good, by hindring the Earth about the Tree from enjoying a free Perspiration, which is perfectly necessary to the Growth of all Vegetables.

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The next thing is to secure the Tree from Cattle and Winds, which to do, I think it is not enough to say ---- Stake or Bush it up ---- These are insipid Directions; but on each Side of the Tree, about a Foot from its Body, drive a thicker Stake into the Ground, than the Body of the Tree is, so that there may be four or five Foot out of it; then nail Ledges or Cross-bars against each other, two at top and two at bottom, and stuff some Grass or Hay between the Bars and the Body of the Tree, to keep it from Gallings; and then draw Thorn-bushes perpendicular through the two Pair of Ledges, letting the Top of them remain two or three Foot higher than the upper Bars, the better to keep Cattle from rubbing. This Method will not only sustain the Tree against Winds, but all other Injuries from Beast and Vermin; here likewise is free Access for Water, or Weeding, and for Hoeing, if that is thought proper. This Repetition I have again inserted, that it might be better remembered for its great Usefulness.

I planted a Bergamo Standard Pear Tree, that I bought of a Gardener for one Shilling, just after this manner, about four Years ago, on a gravelly Soil, on the Baulk or Hedge-green of a ploughed Field, near half a Mile from any House, where it was never yet watered by me, and yet I think it is as flourishing a Tree, as most in *England* of its Age: But I must needs say, where a Well can be conveniently sunk, not exceeding thirty Foot deep, there an Elm Pump may be placed to supply by a Water-cart, and Leather-pipe, the Growth of this new Plantation, and then it is likely they will get the start by much of those Trees that are not thus artificially watered.

It

It is arable Ground whereon you are to plant these Elms; then it should be first manured very well with old rotten Dung, and ploughed several times, till it be got into a perfect Sweetness, Hollowness, and Fineness; on this plant the Trees even upon the very Surface; and then bring good Mould, and raise a Border after the same manner as before directed.

Such a Plantation may be contrived to great Profit, by planting the Trees in regular Rows, in *October* or *February*; and the Ground about them laid down with Grass, and not imployed in Grain, which in my humble Opinion, is far preferable, as I have found by Experience; because this will feed Sheep, whose Dung and Stale is of most Virtue in the Nourishment of all Trees, and are less capable of hurting them by their Rub, than Horse or Cow; but then especial Care must be had that they can't come at the Body of the Tree with their Oily-wool: Nor will the Roots of this Tree exhaust, and draw away the Goodness of the adjacent Earth, as an Ash or Oak will, whose Roots run both deeper and broader in the Ground; but affords a pleasant, healthful Shade by its Head and Body, to the Cattle about it; free from those voracious and insidious Qualities, inherent to the Oak, Ash, and Walnut. These Trees then so planted (with their Heads cut off, or some left on, as the proportion of their Roots will admit of) will amount to one Hundred and Eight on an Acre, at twenty Foot asunder, which at their full Growth modestly may be computed worth forty Shillings each, at one Shilling *per* Foot, though the current Price is from ten Pence to eighteen Pence, according to the clearness and goodness of the Body; which with the Benefit of the Grass between them, must amount to a brave Sum in that time;

time; considering such Land whereon they are planted, may not be worth six or eight Shillings an Acre; and indeed it is Pity that more Hedges are not planted with Elms; because as I said before, they don't damage any thing about them, as some other Trees do, whose Heads must not be trimm'd up as these may, and yet so profitable, as to be worth in time five or six Acres of Land, that they may thus enclose.

This Tree when aged, or otherwise requiring a Renovation, by cutting off its Arms and Head, they then should be cut close to its Body, else the Stumps in time will become rotten, and convey the Water too freely, even to the Heart of the Elm.

As the Elm is not a proper Plant for raising entire Hedges to fence our Field with, I shall desist enlarging thereon, as being a Subject rather belonging to the Gardener's Province, where it is now more agreeable in Hedges for Walks, Avenues, &c. for according to the Proverb, A Shoemaker ought not to go beyond his Last: 'Tis therefore that I think a Gardener and Farmer are different Professions, altho' their Business has an immediate Concern in Vegetables, and I believe are equally Strangers to each others Affairs,





C H A P. IX.

The Nature and Improvement of the Witch E L M.

THIS Tree is a most proper one to grow in Parks, because of its agreeable Bark, which the Deer greedily eat in Winter, and have so great a Love for it, that they will string it with their Mouths to the last bit, and prefer it to the Ash, Thorn or any others: It is a Tree that grows to a great Bigness, even to four or five Foot Diameter in its Body, and will prosper either in Standard, Pollard or in Stems, in Copses or Hedges, where they will grow in many fine, high, strait Poles and Shoots, expeditiously and large; The Wood of this Tree is tougher, and more durable, than the common Elm, and serves to make Coach-footings, Gates of Fields, Somers and Joysts, &c.



C H A P. X.

The Nature, and Improvement of the A S H.

THIS is a most useful Wood to the Coach-maker, Wheeler, Cooper, and Numbers of other Artificers; and is one of the quick Growers, because its Roots, if high enough planted on the Ground, will run and spread in the uppermost Part of the Earth, beyond any other; and therefore

fore it's become a Rule amongst the Judicious, not to plant or suffer any Ash to grow near any ploughed Ground, because of its voracious Nature, and the great Suction it makes in drawing out the Goodness and Heart of the Ground, to the depauperating the Land, Corn, and Grass that is in reach of its horizontal Roots; and yet this Evil is very common, but chiefly owing to the Ignorance of the past Age; however it has so deterr'd many of the present, that they abhor the Sight of an Ash that grows near the Corn Grounds; wherefore, to avoid the Curse, and enjoy the Blessing, the best Places to procure the Growth of Ash, is in Forests, Woods, Coppices, Parks and Commons.

To get a Wood, or Copse of Ash, it may be done three several ways. First by sowing their Seeds or Keys (that have been preserved all the Winter in moist Sand, to keep them from shriveling) over a Piece of well manured and ploughed Ground, which must immediately be sown over again with Barley; these two will so well agree, as not to hurt each other; for the Ash will not appear till the succeeding Spring, so that the Barley may be got off as at other times; after which, the young Ashes may be hoed and thinned at Pleasure.

Secondly. But which I think is much better, when the young Ashen Trees are sown, there may at the same time be sowed both Acorns and sweet *Portugal* Chestnuts; these likewise will be of hardly any Prejudice to the Corn, because in the first Summer, they'll only be employed in striking Root, under the propitious Shade and shelter of the Barley; and if a little of the Seeds of the Acorn or Chestnut should appear at mowing Time, the Scythe may easily pass over them: Now these two Sorts are certainly the properest to keep the

Ash company, by reason they strike their Tap or Master-roots very deep into the Earth, to seek their Food in a different manner from the Ashes, that may be left at five Foot distance each, and then one Thousand Seven Hundred and Sixteen will grow on an Acre of Ground.

Thirdly. If it is thought better to get a Wood from the Set, or young transplanted Tree; then the Keys may be gathered in *October* or *November*, and directly sowed on fine Mould in a Nursery, and covered an Inch or two deep with Earth; the second Spring following they'll come up, and afterwards may be transplanted in another Bed, and so brought up to your Desire: But here we gather the young Sets out of our Woods, about a Foot, or a Foot and a half long, or more, and Transplant them forthwith; in this Management, great Care should be taken to get both them and the Keys from the Female-ash, because that grows much sooner to a large Body than the Male; now the Female has generally a clear, white, smooth Bark, but few or no Keys, and loves low Places: The Male has a rougher, knottier Bark, and harder Wood, has more Seed, and is more tedious in its Growth. It was about ten Months since, that an Acquaintance of mine bought an Ash at *North-Church* Common, that contained Six Hundred Foot, Four Hundred Thirty Eight of which, he paid one Shilling per Foot for.

Now the Method of Planting a Copse Wood, I have seen in a Gentleman's Ground near me; first they manured it very well, and ploughed it into a fine Tilth; then they gathered it with the Plough into Ridges, at six Foot distance, whereon in *October* they planted Ashes, at twenty Foot asunder in Lines; and Oak, Chesnut, Hazel, Sallow in the same Row close together; the Ashes were about eight Foot high, the rest small Sets; these
all

all drawing their Nourishment from the Earth in a manner peculiar to each other, doe not so depauperate it, as if they were all of one kind, notwithstanding they fill all the Surface with their Roots; and therefore a Copse Wood promiscuously Planted, will endure much longer than if it was all of one sort; and here is an Opportunity allowed between the Rows, for the Hoe to be employed, and the Ground kept clean from Weeds, and Manure laid in the Interspaces, to the great Improvement of their Growth; and by this the Trees will force one another into the Air, caused by their close Planting; where by the Drip of their Heads falling upon their Under-shoots, and the great Cover they are shaded with, their lower Arms will be kill'd or spoil'd, so that their Sap will be chiefly employed in the Growth of their Bodies and Heads; and then the Underwood will be fit to fell in nine, twelve or fifteen Years, as it is wanted in bigness; the proper time for which, is from *November* to the beginning of *March*: But here I must take Notice of a pernicious Neglect, that too frequently happens to the Ash Poles, which are generally put together after they are cut into upright Parcels in the Wood, and there let remain till they are sold: Now if they are not carried away before *March*, a little, black Fly, that comes in Swarms about that time, or in *April*, will seize on and penetrate into their tender Bark, and there in a little time become a small Worm, that afterwards will gnaw the Wood in Rings, so that the Cooper cannot bend them for Hoops; but when the Fly has but just taken them, the Cure is to throw them into a Pond, and let them lie two or three Days, till they burst and die. But the best Prevention of all, is to keep them in Cover presently after they are felled.

The *Practice* of
Of the Pollard Ash.

ON Commons, in Parks, or in any other Grass Grounds, this Tree has an advantage of all others from its many and long Roots, which by their circular spread, and high lying almost on the top of the Ground, are more than ordinarily capacitated to receive the fertile Benefits of the Horse, Cows, Deers, and Sheep's Dung and Stale, which is more or less obtain'd as the Situation of the Tree, and its sheltring Tread invites the Cattle to shade themselves under it. The Pollard Ash, is that which is made by cutting off the Standard's Head, and should be lopt for that purpose, before it arrives to a very great Body; else the Wets will be very apt to get in between the Rind and the Body, before the Wound can obtain a new Covering, and so rot and perish the whole Tree in a short time; and afterwards all Lop should be cut off the Head of the Pollard, at nine or almost at twelve Years end, before the Shoots get too big; for certainly the younger they are cut off, the sooner the Wound is covered, and the longer it will continue in a healthful, bearing State; but it has been observed that the Ash, as well as all other sorts of Pollards, grows slower in its Body, than they did when Standards; because the Sap which should cause its Bulk, is employed in nourishing new Shoots. This Lop, when green, burns the best of any, which makes the Country Folks rhyme it, and say, *It's Fire for a Queen*. It is also of vast Service among Deer, especially in hard Weather, when it serves as a sort of Subsistence to them; for on its soft Bark, both they and the tender-mouth'd Heifer, will bruise and peel the Arms, and Boughs quite clean.

Of

Of ASHEN Stems.

IN many Hedges, numbers of these are seen to grow, as the Successors of cut down Trees, but whether they are here by casualty, or planted on purpose for this Use, it is wrong Management; for these Shoots that grow directly from the Stem, rob their Neighbour Plants so much by their luxuriant Roots, as to impede and hinder their keeping Pace in Growth with them, which causes its Head to spread, top, and drip on them to their great Prejudice: It is these that are more covered by Cattle, beyond any other in the Hedge, and therefore more liable to be cropped and stunted, which obliges us to preserve them for the first two Years after cutting, till they are out of the Cattle's Reach, though at best they make but a hollow Part in the Hedge, and often give room to Sheep and other Beasts to find a Passage into neighbouring Grounds; so that the Ashen-Stems are indeed fit to grow no where else but in Woods and Coppices, and here they turn to a great Account, in the Production of the best of Poles for the Coopers and Chair-makers, by letting them stand eighteen Years, which is twice the time that is allowed to Sallows, Hazels, Maples, &c.

Of the Standard ASH.

THIS is still more pernicious in a Hedge than either the Pollard or Stem; for this, by its uninterrupted Growth, gets a greater Head than the rest, and so is more capable by its venomous Drip, to damage all others that are contiguous and inferiour to it. But here the ill Property of the Ash does not end, for its Leaves are
of

of such a disagreeable Nature (I can't say how unwholesome) that I have known a considerable Quantity of Stout-bear spoiled, by brewing with Pond-water wherein its Leaves fell; and notwithstanding the Beer had above a Year's age, yet neither that, nor the strength of the Hop, were able to take off the Leaf's nauseous Taste.

When this Tree by mistake has been suffered in a Hedge, or otherwise, to grow so near the ploughed Ground, as to prejudice the Land and the Grain that grows thereon, by its Roots; then the best Remedy next to its total Extirpation, is to dig a narrow Ditch, and with a Mattock to cut off all its Roots to the outside of the ploughed Ground for about a Foot or two deep, which is full enough; because at a greater Depth, they can't hurt the superficial Part of the Earth; then fill in the same with the Mould that came out: Thus you may keep any Ash from hurting the Land, especially if there is a Balk of Grass between the ploughed Land and the Body of the Tree, as there is in most of our *Hertfordshire* Inclosures.

And notwithstanding this Tree is known to spread beyond all others, yet some of its Roots have been found to run fifteen Foot deep into the Ground, and will, like most others, grow faster in the best Earth, which it will infallibly peel, though it will grow in most Situations, from the Tops of Hills, to the Flats of Vales; and where a knotty, sound Tree happens (as they often do) to be well grain'd, they are of considerable worth to the Cabinet-maker.

The Seed that is in the Keys are flat, somewhat like that of a Cucumber, and is carried by the Winds, the distance of some Poles from their Trees; but this is not all their Conveyance, for these Seeds being much loved by the great and small

small Birds, are by them carried to distant Places, where they peck out some and scatter the rest, and in this manner they have been known to seed a Piece of Ground at *Dagnal*, near half a Mile of the Wood where the Trees grow: Some again have enjoyed Plantations from the Seeds that were blown by Winds; others have had the Benefit of some thousands of Pounds from their Produce, and all of their own planting.

The Rinds and Tops of the young Ashes, even when the Trees are a Foot diameter in Body, are so coveted by the red and fallow Deer, that large high Rails are frequently put up in Parks, Forests and Chaces, as Guards against these arch Enemies; Sheep also will debark the young Trees, and Shoots in Hedges more eagerly when they are fattening on Turneps, as being a cool, refreshing Food, contrary to the hot, bitter Turnep. The Mice too, tho' a small Creature, are great Destroyers of the young Ash at all times, but more in Snows, for then the Woodmen have observed that they have peeled an Ash, from the thickness of a Thumb to a Fork-stalk, a Foot above the Ground.



CH A P. XI.

The Nature, and Improvement of the WALNUT.

THIS Tree, for the many Uses its Wood and Fruit affords, deserves the preference to some others for a Plantation; and now more than ordinary, because of the great Numbers that are
P frequently

frequently fell'd for the Lucre of the Money, that their valuable Bodies raise to Successors of better Husbands than themselves; their price being from one, to two or three Shillings the solid Foot, according to the fineness of its hearted Grain, in Trunk and Root at forty or sixty Years old, when these Trees are generally at their full Perfection, and sometimes one of them is sold to the Cabinet-maker for thirty, forty, or fifty Pounds; and as the Root is often a valuable Part of this Tree, it should not be sawed or cut down at Bottom, but stock'd and grub'd entirely up. Nor is the sappy Part without its great Uses in Stocks of Guns, Chairs, Wainscot and other Works, that the several Artificers make exquisitely fine, when done over with its own Oil very hot, made by expression of the Kernels, that are said to yield three Quarts from a Bushel of its Nuts; these may also be preserved for eating, in covered Pots put into the Ground, so that the Wets can't annoy them, and then they'll keep nine or ten Months, and eat near as well as at first; or if they happen to be dry, it's only putting them in warm Water a little while, and the Kernel will swell, and be almost as good as ever.

Their Sorts are two, the *English* and the *French*, the latter is a large, thick-shell'd one, and is best for pickling and preserving; the former a smaller sort, but much sweeter kernell'd, and may be planted in grass Grounds at forty or sixty Foot distance, by taking off the Turf and laying it by it self, then take the next Mould a Spit deep and put that by it self; then put the Turf the Grass downwards, and the Mould that came out on that; in which put four or five Walnuts so far within the Earth as it may just cover them, if the Diameter of the Hole is three or four Foot: These Holes thus made and planted, must be securely fenced

fenced by outside, general Railing the Field in, or particularly round each Hole, so that there may be free access of weeding them; afterwards the Master-plant may be left as a Standard-Tree, that in time will make both pleasant and profitable Walks; and thus this Tree will by far out-grow all transplanted ones, as I have to my cost experienced; for it is now near twelve Years since, that I was tempted to purchase a Parcel of about twenty Years old of a Nursery-man, some of which to the best of my belief as big then as now in their Bodies, notwithstanding I planted them in a rich Loam, and three Years ago cut their Heads off, leaving at the same time a few Shoots on, to draw up the Sap; since which they have shot very strong, and now are like to make fine Trees: But if the Nut had been thirty two Years ago put into the Spot of Ground where they now grow, I doubt not but they would have been a Foot or more in Diameter of their Bodies, which are not above six Inches in the biggest of them.

Or if they are to grow in ploughed Grounds, then it must be well manured and ploughed fine, before the Nuts are set in at Nature's best time, which is as soon as they are full ripe; or if kept till Spring, they must be preserved in Sand all the Winter, and by some they are steep'd a while in Milk, just before they are planted in *February*, and then they will agree and thrive best in marly Grounds in the Vale; and also will grow in Chalks, Gravels and Loams, and in most Situations. And as I am now writing of planting Walnuts in ploughed Grounds, it is necessary to mention the great Inconvenience that attends the ploughing of the Ground between them, which by consequence must happen, although the Trees be at eighty Foot distance, and that from the often passings, and near approaches of the Plough, Horses and Harrows:

And here I will appeal from the Theory Writer, to the Man of better Judgment, whether the Roots of such a Tree, that is to run even with, or just under the Surface, can make its horizontal Roots, and not be impeded by the often repassings of the Plough, that should penetrate the Earth with its Coulter and Sharr, a Foot deep at least in some sort of its Operations? If it should be objected, that at that distance they need not come so near as to hurt them; I answer, That such a Plantation is liable to be hurt by so many Accidents that may happen from the Horses, Ploughs, Carts, End-turnings, and careless Drivers, as is enough in my opinion to discourage any such Undertakings: I must own I have seen some such Practice in the old *Kentish* Orchards, but it must needs be, where Trees have been planted too deep at first for want of better Skill, which is the reverse of the present Management; and therefore I advise all such Ground in the Interspaces, to be sown with Clover and fine Meadow Hay-seed, &c. as is directed hereafter in the Subject of that Grass, in order for making such arable Land a good Sward.

So also for that wrong Notion of planting these Trees in Hedges, contrary to the Rules of good Husbandry, as is well known to those Occupiers of Farms, whose Interests are concerned in the returns of their Wood and safe Fencing, that the thick, tall Growth of the Hedge is the sole Occasion of: Now both these great Benefits I will prove are in part destroy'd by such Trees; for first, the Drip of all Heads of Trees are more or less pernicious to the under-shoots, as they are narrower or broader, and of a good or bad sort; this is often visible in the thicker Woods, where the lower Arm (as I have said before) and Branches are rotted by the Shade and Fall of Water from the upper Boughs, so that only the top Part of the
Tree

Tree thrives, that enjoys a free Air and Sun; and thus it is in proportion with all Hedge-wood, that is under a Tree's shady, dripping Cover.

Secondly. The Roots of all such Trees, by their bigness and extent, have a superior Power to imbibe and attract the Fertility of the contiguous Earth, whereby the Underwood is hindered in its Growth; and here it is that Cattle take the Advantage of such weak, crippled Boughs, to make a Breach into neighbouring Grounds, where in one Night's time five or six Cows or Horses, or a Flock of Sheep may do twenty Pounds damage; but this is not all, for Boys and others generally spoil a Hedge to come at the Fruit, as being encouraged thereto by this remote Planting and free Access.

And for these Reasons it is, that many are so far from raising Trees (the Fruit sort especially) in Hedges, that they have destroyed great Numbers that have been found planted by their Predecessors. For I have known a Hedge where Sallow, and white Thorn have grown without the interruption of Trees, that forty Poles at nine Years end have returned four Hundred Faggots, worth twelve Shillings a Hundred.

Indeed where a Person is resolved to multiply Wood in Hedges, and prefer his Fancy to his Interest, then I must confess that an Elm from its narrow Head that it may be kept to, either by the cut of the Bill or close Planting, or from its small Leaf, will do less prejudice than many others. And likewise the black Cherry-tree, by the Farmers in this Country, is deemed to do the least harm in a Hedge of any Fruit Tree; because the Drip of this Gummy Tree is not so insidious and venomous to its Underwood, as is the Ash, Walnut, &c.

It is therefore that I have been induced to plant several Rows of Trees on grass Baulks, or hedge Greens

Greens of ploughed Fields, within about six Foot of the Hedge; and that because their Roots may the better enjoy the Virgin Mould under the Turf, and the Benefits of the Highway or Ditch, that in time they may penetrate into, without any considerable hurt to the Hedge from their Roots or Heads; here also they are more safe from the Rapine of Thieves; the Fruit more commodiously gathered; the Windfalls better secured, and the Cattle more conveniently lie and shade themselves under their Boughs, to the great Enriching of such Trees by their Stale and Dung.



C H A P. XII.

*The Nature and Improvement of the Black CHER-
RY, &c.*

SEVERAL good Properties of this Tree having slipp'd the Knowledge and Notice of Authors both Ancient and Modern, I shall be the more singular in the Illustration thereof; and because this County of *Hertford* does certainly more abound in Plantations of the common Black Cherry Tree, than any other in *England*, and particularly the western Part where I now live, is as famous for the Black, as *Kent* is for the Red or Flemish Cherry; and this I can't do, I think in a better manner, than to insert the Copy of a Case I drew up above a Year since on that Account, viz.

REASONS

REASONS humbly offered in behalf of the Counties of Hertford, Bucks, Kent, &c. for encouraging the Growth of the Black and other Cherry-Trees.

THAT by the late Act of Parliament for prohibiting the Consumption of the black and other Cherrys; the said Counties are miserably distress'd; For that the Black Cherry in particular, having many singular Advantages belonging to it, is, by the disuse of it in Compound Liquors, rendered of little or no Service.

Whereas this Fruit is in it self of that healthful and cordial Nature, that it is a Corrector of several sorts of Liquors, particularly in Molosses and Malt Brandies; also in Beer their Excellency is found, as well as in the wholesome Wines, Syrups, and distilled Waters that are made of them, whose medicinal Qualities are best known to the Physician, Apothecary, &c.

The Black, wild Cherry, for many Years past have been a sort of Harvest, both to the Owner and the poor; to the first, in that it is a Fruit that most opportunely precedes the Corn Harvest, and thereby is of such Consequence to the Farmer's Interest, that it often returns Money enough to defray the Charge of Inning his general Harvest: The latter are employed in gathering them as they successively ripen, and so become a Subsistence for some time to their poor Families.

The Higgler also that buys them, shares in their Advantage by turning the Penny at the London Market, where they are generally twice retailed, and where the Distiller used to furnish himself for making a Spirit from this Fruit, and correcting his Brandies by their salubrious Infusions.

The

The Black Cherry Tree in particular is also endowed with several beneficial Qualities; for it is a Wood that is next serviceable to the Oak, for the inside Buildings of Houses, Barns, &c. And because of its long Duration, and Strength, is of Service to the Commonwealth in general; and for its fine red colour, which is encreas'd by letting it lie two or three Years on the Ground after it is cut down; and then it so nearly counterfeits Mohogony-wood, as hardly to be discerned in the difference, both in its Grain and Colour, by the help of a certain Liquor that the Joyner stains it with.

Again this Tree of all others is the most common and the easiest introduced into our Woods and Plantations; here the Rooks, Jays, and other Fowl bring and eat the Cherry they collect at some distance; the Stone whereof falling to the Ground in a moist, shady Place, comes up spontaneously and better than if planted, and often thereby obtains a luxuriant Tap-root; from hence as from a Nursery, we are supplied with healthful, thriving Trees, which we plant upon our Commons, and in our Fields, in regular Rows, and there improve them by grafting and budding with variety of the best sorts, which of late several have been found to bear constantly on these Standards; as the May-duke, white-hart, Black-Orleance and the Morella; and this last which is the latest of Cherries, has a peculiar Quality belonging to it; it is this that makes the most pleasant Cherry Brandy of all others by its infusion, even to come up very near to the Liquor called *Turkish* Visney, that used to be sold at *London* for twenty Shillings per Gallon; besides the Black Cherry Tree on a proper Soil, and when right planted, is of so quick a Growth, that we reckon it is at best in about forty Years, from the time of transplanting.

And

But in the Year 1730, there happened many miserable Instances of discouragement, that this fine, useful Fruit met with; one being by a Tenant between *Chipperfield*, and *Rickmansworth* in this County, who paid in part of his Rent twenty five Pounds *per Annum* for his Cherry Plantation; and after having gathered such a Quantity as to lose five Pounds by them, called several of his Neighbours to view the remaining part left on the Trees; and, as I am told, they computed them to be about two thousand Dozen which he left to spoil, as not defraying the Charge of gathering: And near *Watford* there are some that have paid above thirty Pounds a Year to Cherry Gatherers, (as I am credibly inform'd) and my very next Neighbour has received ten Pounds in one Season clear of all Charges, for Black wild Cherries, though his Farm is worth but fifty Pounds a Year; and I can say, that I have sold the Fruit only of one Tree for a Guinea, and the Buyer gathered the Cherries.

And not a little has been the Cry of the Poor, as well as the Complaints of the Farmers; and I doubt not but those Landlords who are concerned in Cherry Grounds will be more sensible of this, when their Rents sink, which is now more likely than ever.

These Trees we transplant out of the Woods at seven or eight Foot high, and about two or three Inches diameter, in *October* or *February*, without their Heads, which forwards their making new Roots; so that the second Year following (and sometimes the first) about a Fortnight after *Midsummer*, we bud on their new Shoots, what sort is liked best; by taking the largest Buds about an Inch in Length off the strongest upright Shoots, and with a very quick Slight before the Sap is dry, put them into a little Incision of that Size first
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made in the Bark, like a reversed **I**, on which nicety depends very much the good or bad Growth of the After-head; this we bind about with Yarn very exact, that all Parts of the Bud and Bark about it, may touch and receive a Communication of the Tree's Sap; then at a Month's end, we take the thing very gently off; and about *Christmas* after that, cut the new budded Shoot off, four or six Inches higher than the Bud, on the contrary Side, with a Slope that the Water may not descend on the Bud, which likewise must afterwards be kept free from all natural Shoots that will be sure to make their Attempts.

There are many sorts of Cherries, as the Kerroons, Orleans, Morella, Great-purple, Little-may, Crown, Cadilliac, Pomegranate, Carnation, Egriot, Merry, Cluster, Spanish, Amber, Non-such, Naples, Biggarreaux, Kings, Prince-royal, Arch-duke, Common-duke, May-duke, Biquar, and Dwarf: The four sorts of Harts, Lukeward and Gascoin, besides the *Kentish* or *Flemish* Cherry: Of all which Number, I only make use of the Kerroon, Orleans, Carnation, *Kentish*, the Harts, and the May-duke, and of them I think the Kerroon excels; this is a large, shining Black, with a lesser Stone and more Flesh than the Harts, will thrive in any sort of our loamy Grounds in the Chiltern, and will best bear a long Carriage: but like the Beech, refuses most Parts of the Vale, and so does all others that I know of, except the May-duke; that lovely, great, red Cherry, that comes early and bears constantly. These budded Cherries are now vastly improved, not only in young, but also in old Trees, whose Heads are cut off about *Christmas*, leaving a few Shoots or Boughs on, to draw up or employ the Sap (otherwise they often die) which the very next Summer will throw out new Shoots, that may the Summer following

following be budded to quick Profit, as I have done by several of my own that are now fine Trees. Of these improved sorts, both young and old, I think I have between two and three Hundred growing in my Fields, that annually require to have their Moss rubbed off, and their Hoop-outward Bark just slit down with the Point of a Knife in *April*, so that the inner one be not wounded, lest the Gum issue out, and the Tree die or pine: This is of such consequence, that a Tree will grow in Bulk more in two or three Years when so served, than in fifteen if let alone: But no hot Dungs must ever be used to the Roots of this Tree, for it is entirely contrary to the Nature of the Cherry, that always affects cold Soils more than warm ones.

These, as well as some other Trees, sometimes suffer by the Honey-dews in the latter Part of the Spring, and in Summer, by their falling on the Leaves, and there, by its corrosive Nature, curl them up, and breed the green and other Flies, that afterwards greatly hurt the Fruits of the Earth, and the Cherry in particular, and are called by the Country-folks *Ladle-men*, because they hollow the Cherry by their bite, and cause it to fall; these and Caterpillars will sometimes so feed on the very Leaves, that they will be almost eaten up. The best Cure for this is burning Straw under the Tree, or throwing or squirting a Quantity of Water on it. There is also another Blight occasioned by the easterly and other Winds in the Spring; these will sometimes, by their frigid Potency, oblige the Leaves to turn yellow and fall off, so that the Tree will be almost naked as at the approach of Winter; whereby the Blossom or Fruit often falls from the Tree, or grows small and insipid. Another Blight there is by the Vapour, Fog, or Mists that arise from low Grounds,

that in the Spring are often fatal to the young Fruits; it was these that spoiled my Cherries this last Season, 1732. that grew in my bottom Grounds, which lying more from the Sun's Influence than the Hills, the Frosts and these by their long continuance in this Situation, prov'd destructive to the Fruit, tho' so late as in the Month of May.



C H A P. XIII.

The Nature, and Improvement of the HORNBEAN.

THIS is in great Reputation for both Copse-hedge and Wood, and is planted in many Parts, but more abundantly about *Whethamstead* in this County, for its several good Properties, viz. It is a Wood that will grow on poor, hilly, gravelly and barren Grounds, and much more in a good Soil; but wherever it grows, it runs into fine, high, strait Poles at a moderate Pace, and they very close together, and is not of that pernicious Nature to kill his Under-Neighbour by dripping on its Head; as Sallow, Ash, Hazel and Mapel will, which makes this so advantageous both in Copſes and Hedges; for that a great Number of Stems will grow and flourish in a small Quantity of Ground, and in Wood and Hedge will be fit to cut down in nine, twelve, or fifteen Years to good Profit.

Besides, in a Hedge in particular, this Wood is, by a strait, regular plantation of it, no less ornamental than useful; for here its uniform, close, and tall Growth makes it preferable about Walks, Gardens,

Gardens, Parks and Fields, where it will cary its Leaves to the very bottom: And here it makes a most noble Fence against the Trespass of Cattle; for in its Nature, nothing of *English* Woods excells it for hardness, but the Box, Yew, &c. the Plaish of it being so strong, that it will lie across in a Hedge like a Rail, and not yield to the Efforts of Horse nor Cow, as several of the aforementioned sorts will, which renders its Poles of great Use in Mills, small Rafters, Heads of Beetles and Flails, &c. and so far exceeds most other Fire-woods, that when it is burnt enough, the Coals will hold a bright Fire like Charcoal for a long time.

I found a few Stems in a Copse-wood that I bought fifteen Years ago, but they are not so plentiful here, neither in Stems nor Trees, as in some other Parts: However, our Neighbourhood now have begun planting the Sets in their Hedges at the time of their making, and are most expeditiously raised by those of an Inch diameter; these may be also raised from their Seeds sown in *October* or *November* (that are ripe at that time) in ploughed Ground well manured and in a fine Tilth, or in Furrows made in strait Lines by the Plough at any distance; or by putting their Sets in a Bank made by throwing up Mould out of a Ditch, in a single or double Row almost close together (for Hedges are seldom too thick as I can find) which will be an excellent Fence in Grounds of Corn, Grass or Wood; and by thus planting the Sets, four Years will be got in advance, for the Seed will not appear till the second Spring after sowing. These Sets may be found at the bottom of Stems, both in Woods and Hedges, and planted in *October*; if in Woods, their Side-shoots must be only pruned off, but not their top but in Hedges they should be cut at setting

ting to six Inches in Length, for then they will grow thick; or to be more sure of a strong Fence, White-thorn may be made every second Plant, as best enduring the drip and close planting of the Hornbeam, and will by its more short Head, with the help of an adjoining Ditch, so shade and moisten its Roots, as to contribute not a little to its speedy Growth.

The Seed in its Shape, Bulk, and Colour, is much like that of *St. Foy*, and will hang in a Hedge in a mild Winter till *Christmas*. There are some of these Trees of a large Diameter in *Luton Park*, and in some other Places preserved as Pollards, but are of slow Growth.



CHAP. XIV.

The Nature and Improvement of the LIME Tree.

THE Lime, or Lindon Tree grows very uniform in Rows to a great Bigness, where their Soil is a good Loam, or a Loam with a Clay Bottom, provided it is not in a wettish Place, for then it's apt to rot its Roots; or if it is a loamy Gravel, they will thrive very fast, but not in a sharp, hungry Sort, for that will starve their Roots; nor in the dry, hot Sands; because in the first Sort, where there is a strong, sound Bottom, they will hold their Leaves till *Michaelmas*, but in the two last, they'll complain and be yellow a Month or two before that time. The Male and Female have different Productions; the Male has a small Leaf, and a fast, knotty Wood; the Female grows sooner, its Leaves larger, and brings forth fine perfuming Blossoms in the Spring with reddish Shoots, that

that give a strong Invitation for its planting before Doors in Towns and Country, not only for Pleasure, but Health also, as being a very good Cephalick, and Assistant to the Nerves, to those that can enjoy enough of its delicious Scents.

It may be propagated by its Seeds, sown directly from the Tree, the latter End of *October*, or preserved in Sand and sown in *February*; or it may be encreased by Layers, buried in the Earth with their young Shoots in *October* or *February*, as the Elm is; or transplanted in small Sets taken from the Roots of old Trees; or if they are larger, and of a Foot diameter more or less, they will grow, provided the Heads are cut proportionable to the Roots; and this Caution affects all Trees whatsoever; for if the Head is left on when replanted, as was on it at taking up, it must not be expected that the same Roots will carry the same Head without languishing, if not dying entirely; because in this new Situation, the Roots have hard Work to strike in and naturalize themselves; and therefore they ought to have the help of a light Mould, the better to run into, a little or no Head, that the Roots may shoot the stronger, and transplanted presently, that the Air dry not any of their Roots.

The Lime will not make proper Hedges for Fields, yet for Walks and Gardens it will answer very well in a close and beautiful Growth, but best of all in fine Avenues, at twenty or forty Foot distance; and then they will not only make pleasant Walks, but also prove a noble Shade and Shelter from Blights and Severities of Weather, if planted on the East or North-Side of a House or Garden, as those are in *Asbridge Park*, where a long Row of tall Limes at ten Foot distance now grow, that measure three Foot diameter at bottom, and were there first set in the Year

Year 1660, on a loamy, high Ground, under which, about a Foot or eighteen Inches deep, is a red Clay.

This Wood is of a soft Nature, and therefore used by the Keel-maker, Carver and some others.



CHAP. XV,

The Nature and Improvement of the Horse CHESNUT.

I WAS acquainted with one that had formerly been a Gardener under Mr. *London* and Mr. *Wife*, and liv'd a Mile from me, who about twenty Years ago put some of the Nuts of this Tree into Drills, or Holes, in a rich Garden Mould five Inches deep, a Foot asunder, and in Rows a Foot apart; these, after two Years were transplanted into a Nursery, in Lines two Foot distance, and about four Foot from one another, first cutting off their downright Tap-Roots; here they remained till they were seven or eight Foot high, and then transplanted where they now are; some of them grow in a circular Manner at twelve Foot distance, and enclose a Piece of Ground where Carpenters work; the rest were planted close to Park Pales at ten Foot asunder, to serve in time instead of Posts to support and fasten them to, for this Wood like Ash will suffer Mortaises in their Bodies without complaining, as all the Cherry and other gummy Sorts will; and altho' it is but twelve Years since their being fix'd for good, they some of them are now above eight Inches diameter.

The Top or leading Shoot should never be cut off in Standards, only some of the Side-ones just before

before they leaf, may be pruned away to keep their Heads thin, and so prevent the Wind's Damage, that is often fatal to some of the Arms of this spalt, brittle Wood, that I have seen broke off, when almost all others have escaped. But where Hedges of this are planted for Ornament, at four Foot distance each Set, several of their upper Buds must be annually cut off with the Knife, and not the Sheers, to make them grow thick and strong.

This Tree is of so quick a Growth, that it has been observed to Shoot an Inch in Length in twenty four Hours in all its Branches, which was proved by the aforesaid Gardener, by tying a Stick even with the Twigg; but this fast running is partly over after *April* and *May*. They will also grow to a large Bigness, as may be seen by those in *Casbiobury* Park. They will prosper in our cold Country on dry Banks, and on Mould that have clay or gravelly Bottoms, but best in the richest Earth.

In Hedge or Standards, it is excellent to the Eye at the Spring, when its clammy, turpentine Bud breaks forth into curious, divided hanging Leaves, and bear Clusters of beautiful Flowers that perfume the ambient Air, and after that, a pleasant Sight by their great Brown Nuts; but for its soft Wood I can't account for, otherwise than that it may serve for some Uses unknown to me, besides the Fire.

I shall conclude this Subject with an Expression from a *Swiss* that I knew, who brought these Nuts in his Pocket at first from *Windsor*, that now are fine Trees; says he in *French*, *Je suis surpris, quand je pense que je porte tous ces Arbres à la fois dans ma Poche*. That is, It moves my Wonder to think, that I carried at once all these fine Trees in my Pocket,



CHAP. XVI.

The Nature and Improvement of the Sweet CHESNUT.

THIS Tree grows well, but not so fast as the Horse Chesnut; and is so much like the Oak in Sap and Heart, that it is hard to be distinguished, and will answer to the same purpose in many things. The Laths also of this are sold for the same price as those of Oak. A Barn of this Wood is now standing, as I am informed, at 'Squire *Snell's* near *Cony*, that has brought the very Carpenter under a Mistake in his Guess. In *Asbridge* Park, one of these Trees was felled about fourteen Years since, that out-measured all others there in its Diameter, and many of them are now growing in *Gossumbury* Park by *St. Albans*, and at *Penly* near me.

In Coppes they will yield most fine tough Poles, that serve for Hop-grounds, Fork-stales, &c. where if it be well looked after, will in about twenty Years get up to a small Timber, and return a pleasant ripe Fruit in *October*, that now-a-days are in much request either roasted or boiled, and eat alone, or with Pork as Potatoes, and in several other Fashions. It's a Tree that is very hardy, will grow on Mould with a Clay Bottom, or in sandy or other Loams, in any cold, bleak Place, where it will stand firm by its strong Tap Roots, and therefore may be made a Shelter against the North or East Winds, or planted in Avenues; and to have it thus answer, its Nuts should be sown or planted at the same time, and in the same manner as the Acorn is.

If

If in Copſes, then the Ground muſt be well manured and ploughed into a fine Tilth, and that into Furrows, at ſix Foot diſtance, wherein may be put four or five Cheſnuts very near together; then at five Foot aſunder as many other ſort, and ſo forward, and at ſuch Diſtances may be put in Sollar-ſets, Aſhen-keys, and Hazel-nuts in *Oſtober* or *February*, firſt harrowed croſs-ways before the Sets are put in; by this Method they may be drawn and thinned when at ſufficient Heights, leaving only the Maſter-ſhoot, and will grow, if kept hoe'd, very faſt, and be fit for felling in twelve Years time, if the Ground is in good Heart; for it is this that governs the After-ſucceſs of this Tree, and the Cheſnut-poles, as well as good Planting and Cleaning; there may be alſo left, what Standards and at what diſtance is thought fit; always carefully keeping the young Trees pruned cloſe to their Bodies, that their Heads may not ſhade nor drip on the Underwood too much; this way is far beyond that artificial one, of keeping the Nuts in Sand, and planting them in Spring, becauſe it is freed from the riſque of Spiring before the Nut is put into the Ground, and alſo from unnatural Tranſplantations; the Fruit is preſerved in dry Earthen Pots, kept very cloſe in a dry, cold Place.



CHAP. XVII.

The Nature and Improvement of the MAPLE.

THIS is a Wood frequently found in Copſes and Hedges, grows in moſt Soils, but beſt in dry Loams, Gravels or Chalks, and is for its
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lightneſs,

lightness, whiteness, and diaper'd Knots, excellent for many Uses, well known to several Artificers.

In a Hedge it is accounted a brittle, spalt Wood, and apt to fly before the Ax or Bill, so that there is no such thing as making it in Frosty Weather; but has this good Property belonging to it, that it will grow with the least Rind that is left to its Plaish or Hambend, of any other.

This Wood being of a light, soft Nature, is not so profitable to burn as some are. They are sometimes made Pollards, but make a slow Return that way; in Standards they seem to do better, because they are not subject to those Evils that the Pollard is; for this being a soft Wood, is apt to let in the Wets after their Toppings, whereby their Bodies often become rotten and hollow: But they answer the best of all in Hedges, because they will here throw up great Numbers of encreasing Shoots, and where they like, will keep pace with the Sollar and Ash.

This Wood is of more value, than ordinary Woods are, for their diaper'd Knots and curled Grain, that have given it the Name of the Peacock's Tail; its white Colour and light Body also renders it a very commodious sort for Stocks of Guns, Knife-handles, Inlaying, Musical Instruments, &c. but with us, its chief Use is, in making Trenchers, Dishes, Spoons and several other curious Turner's Ware; and therefore it is, that the bigness of its Body makes it more valuable, which is much hindered and kept back from the time it is made a Pollard; nor should it be trimmed up of its Sides, for it is by these Side-shoots that its fine Knots are encreased, which made it in former Days in other Countries be more valuable than any other Wood for Tables, &c. which tempted the Ambition of great Men, to be more than

than ordinarily profuse in the purchase of those Goods, and Conveniences that were made of it.

It is a Tree that does not much damage by its natural Head, because it is seldom very large, no more than its Body; two Foot being a good Breadth for this Country Growth, but in some Parts of the Vale they grow faster and bigger than in our Chiltern; however, at best it is but a slow Grower in all the three Shapes, of Standard, Pollard, and Stem; for which Reason, I think to stock up several of the latter in my Spring Wood, to make Room for a more profitable sort: And as to its beautiful white, and scarlet Keys, I think they are more agreeable in Trees, or Hedges of Walks, or Gardens, where that Pleasure is more valuable, than in Fields that are better furnished by those sorts, which are far more profitable for Fencing and Fuel.

Where it has room, it exhausteth the Ground very much, which makes it but a bad Neighbour to some others; it is propagated like the Ash by its Keys and Sets, and at the same time.



CHAP. XVIII.

The Nature and Improvement of the HAZEL.

THE Hazel is a general Wood, both in Coppes and Hedges, and will grow in most Soils and Situations, but best in rich, loamy and dry Grounds. It is certain they have their good and bad Properties as some others have; for Hoops, Rods, and Poles arise from the Hazel as well as Fruit; on the contrary, this Wood has its Inconveniences,

veniencies, as growing hollow in a Hedge, and often lets Cattle through into other Grounds; it is not a very speedy Grower, and often invites the Filcher to damage its Hedge, by getting the Nuts: It is also observed, that in five Plaishes, hardly one lives; and if the Hedge is not made in nine or twelve Years, the Bodies are apt to die, but it must never be made under nine.

This Wood grows less into Profit, because it has not a very extensive Root to make it answer, and therefore agrees best in company with the Sallow, which likewise takes up but little Room in the Earth; and also with the Tap-rooted Sort, that runs deep into the Ground. The Gollins, or Catkins of the Hazel appear in *December*; and their little red Blossoms in *January*; the former is the Male-plant, and is to the Hazel as the Testicles are to the Animal; the latter is the Female-part, and receives the Dust of the Gollins that the Wind blows into them, by which the Nut is impregnated.

They are raised by Nuts, sown when ripe, or in the Spring, after being kept the Winter in Sand, or by Suckers from the great Roots, as our way is here, when we make a new Hedge or thicken old ones. About *Beconsfield* and *Uxbridge* there are great Plantations of Hazel, that return considerable Sums by their Sale to the Hoop-benders; and are also of vast Service to the Thatcher, by its Stretchers, Sprays, and Withs, which much exposes it to the Rapine of Thieves. This reminds me of a Story of one, who having Occasion for some Quantity of them, bid the Workman go about the Country and get enough for his Use; the Man went, but returning quickly, the Master said, I hope you have not cut these out of my Wood, yes, says the Man, because I could not tell where to get better. I have met car-
ly

ly in the Morning, Persons with large Bundles of Pieces about six Foot long, cut out of Hazel-poles in the Wood, which they clandestinely sell; and for much such a Reason, I was brought under a necessity some Years ago to stock up one of my Copse-woods, that grew near a publick Highway, half a Mile from my House, and convert it into arable Ground.

The Kernel of the Nut is more pleasant than wholesome, as is too often experienc'd, especially by the younger sort; a sad Instance of which had like to have been verified, in a Servant Boy of about fourteen Years old, that then waited on the Rev. Mr. *Colemare*, now Rector of our Parish, who had eaten such a Quantity, that two Physicians were consulted, who ordered Quick-silver to be given him,



CH A P. XIX.

The Nature and Improvement of the F I R R Tree.

OF this Sort, there were several Rows planted about thirty Years ago on our Green or Common, at twenty Foot asunder, that now by the close Growth and Cover of their Heads, make several delightful, shady, cool Walks in the hottest time in Summer; and also a pleasant Sight by their ever green Heads all the Winter; these have got up thirty Foot high, and are eighteen Inches diameter of Body: Here they flourish on a high, loamy Mould a Foot deep, under which is a red Clay: Also very near me, grows a fine silver-fir before our Minister's House, on the same Soil that

was

was planted about forty Years since, and is now one of the highest Trees in these Parts of two Foot diameter. This is a most fast Grower in this sort of Ground, and indeed in almost every other, even in the most Northern Parts of *Great-Britain*, if its Roots have room enough, and its Head kept trimm'd up as it mounts in height, which will greatly forward its Altitude: For it is certain, this and all other Trees grow sooner and stronger, where they are free from the Encroachment of any other, and can enjoy a full diurnal Discharge of their crude Sap, by force of the Sun and Air's attraction; and not only this, but the whole vegetable Kingdom is highly improved, where its Subjects have a frank Opportunity of nocturnal Suctions and Imbibings of the Aerial, Terrene and Marine Salts, that both the Earth, Dew, and Water plentifully afford, where there is room for their Communication; and then the Wind will also have a full power to shake their Heads, and loosen their Barks and Roots, whereby a natural Perspiration will be the better promoted, which is one main Part of a Tree's Life, and more of its quick Growth; for by the Winds thus straining the Bark, the Pores of that spongy Substance become more dilated and extended; whereby Transpiration of its crude noxious Juices, receives a more free and open Passage, and easier room for their Evacuation; not only by this outward Coat, but also by its Fruit and Leaves, and that according as the Heat or Cold is more or less; for by the former, the Sap is prepared to perspire away by rarefying and thinning its Juices; and it is the latter that causes a Condensation, and thickens what remains in the smaller or larger Veins and Vessels: Therefore it is a Query with me, whether the Trees imbibe and receive more and most Supplies by its Bark, than any other

ther way, from the aqueous Air for the like Discharges afterwards. And it is a constant Maxim with the Woodward, that the greater and higher the Head is, the more the Trees thrive; for then the many Parts of its Body bark, as well as that of its Arms, Boughs, Branches, and numberless Twigs, are more expos'd to the Potency of the Wind's Strength, that greatly relaxes and loosens the fibrous and stringy Parts of their several Barks and Roots, that best cause those Recepts and Issues that Nature has ordained for their Health and Nourishment. I am very sensible, that in entertaining this Notion, I dissent from the Opinion of some Authors, but I cannot go from the Query, when I consider that the Heads of Trees are the most sappy Part of them; which endows their Barks and most of their small Bodies with such hollow, spungy, soft Parts, as makes them fit Receptacles for their aerial, and aqueous salubrious Subsistence; and that in the greatest Summer Droughts, when all their heated and dried Parts often draw in, and more greedily receive such Quantities of the nightly, dewy Effusions, as supplies the want of Rain for many Months together; and which makes a greater Lodgment on the Leaves and Barks, as they are more or less rough and spungy; for it may be observed, that the Rain does not run down the Oak and Elm, as it does the Beech and Firr: The Reason, I presume, is, that the Imbibing is so great in the dented and hollow Bark, as stops its Currency, which on the smoother ones falls with more Velocity; and where the Bark is rougher, the Leaves in some are finer and narrower, as those of the Oak and Elm are; and though the Moss is an Excrecence, and better off a Tree than on, yet while there, it has a strong Retention of the Dews and Rains, by

its velvet shaggy Parts, and helps to communicate the same into the Body, and many Branches and Twigs; and to supply the want thereof, we frote and rub the Bark with the Back of a Knife, Hair Cloath or otherwise, till it's dilated, opened and loosened, in order the better to take in and imbibe the Air and Water.

The Leaves also are contracted, and in some Measure furl'd up by the Sun's vehement Attraction, that by night are expanded for the better reception of the Dews; but whether it be the Leaves or the Bark, that most receives the Air, Dews and Rains, it is certain they are both concern'd as Vehicles, to convey them to the Roots and many Vessels appertaining to the Tree. And 'tis as true that there is a Moisture in the fresh, open Air, that the spongy Parts of all Trees and Plants imbibe and take in as part of their proper Nourishment; and therefore it is not the Juices alone that the Roots draw from the Earth that supports a Plant, but the Air also gives it a proportionable help, else a Tree or Plant kept in a House would subsist there; but the contrary is plain, that such Plant or Tree would sicken and die if confin'd from the fresh Air; so that though the Earth nourishes at the Root, 'tis the Air and Dews that help in a joynt Assistance to bring forth and carry forward their Growth. This hardy, useful and quick growing Tree, that seldom refuses any Situation or Soil, except the hurlucky Chalks and dry Sands, may be propagated by its Seeds that are got out of their hard, tough Branches, by being soaked in warm Water till they open, and then sown in *March* in the Place where they are always to remain: But if they are to be sown in a Nursery first and then transplanted, they may be ordered as other Seeds are, by raking them in and covering

covering them with sifted Mould half an Inch thick over them, and in three Years time they may be removed at Pleasure, in *July* or *August*: However, at best this is but Male-management, and is never so agreeable to the *Fir* and *Pine*, as if they grow where this Seed was first sown or set; and this I have wofully experienc'd in some *Cherry* Trees that I transplanted from Woods some distance from me, which will never make good Trees: First, Because the Roots and small Fibres were many of them broke and bruised by the Mattock and Spade in taking up: Secondly, By the Air's drying the several Parts before I could get them replanted; and thirdly, by the Rot and Canker that generally overtakes some of them before they can make their new Roots, whereby part of their Vessels must be consequently prejudiced, and the Tree crippled in its Growth ever after.

Or the Seeds may be sown broad Cast on well manured and ploughed Grounds, and only harrowed in *October* or *March*; or in strait Furrows made by the Plough at any distance that is thought proper. And what encourages the Growth of this Tree, is, its being ready for building in thirty, or forty Years; and therefore it's Pity Plantations are not made of this Wood with all Expedition on many Estates, where they will grow beyond most others.





C H A P. XX,

*The Nature, and Improvement of the SYCA-
MORE.*

THIS Tree is one of the soft, woody Tribe, and therefore grows faster than those, whose Bodies are more close and hard. The biggest that have been known in these Parts, grew some Years since at 'Squire Copping's at Market-Street, that measured above six Foot in its Diameter, and served to enclose a Piece of Ground by paling, that its Boards made. It is also excellent for the Turner in making hollow Ware, Trenchers and Spoons, by reason of its great Whiteness and Lightness, and sells to them generally for six Pence the solid Foot. It is a beautiful Summer Tree, as appears by its curious, large Boughs and Leaves, that afford a pleasant Shade, and as fine a Sight when the large Clusters of its Seed makes their pendant Shows in resemblance of Grapes. It may be increased by its Layers, Keys, or Sets. It is called a profitable Tree on account of its quick Growth to a great Body, and for its hardy Nature, as prospering well on high, dry Grounds, and in most other Places, even in low Gravels.

C H A P. XXI.

*Of the Nature and Improvement of the S A L-
LOW.*

THIS is more of the amphibious Nature in my Opinion, than any other of the aquatick Tribe; by reason of its general Growth, either in low, watery Situations, or in high, loamy, gravelly Grounds: This is that which is said to buy the Horse before the Oak will the Saddle, and deserves a longer detail of its many valuable Properties, than this Opportunity will give me leave to enumerate: It is this that will, beyond all others, suffer it self to be cut to Profit in a Hedge at four or five Years end; so that where it is planted with White-thorn (as it best is) it may be made twice to once of that: Here then the Farmer has three Crops of Hedge-wood in nine or twelve Years, and at the same time enjoys the best of Fences, which is thus made, *viz.*

When the first Spit of Earth is thrown up, then plant on the same, about a Foot inwards towards the Field, the Sallow, or Salley Set, and Bed its Roots well on all Sides; at the same time cutting off the Head within four or six Inches of the Earth; then at four or eight Foot distance plant another, and so on: Now on the outside, extream Part of the Bank, white-thorn Sets must be planted with their Heads cut off in the same manner, and after the same length in a direct single Row, as close as they can well be put; then throw up the rest of the Mould on the Roots of both Sallows and
Thorns,

Thorns, whereby they will be all covered, and a Ditch at the same time made.

Another Way.

THROW up the first Spit of Mould in order to make a Ditch; on this plant a single Row of White-thorn-Sets close together, with their Heads cut off as before; then on the opposite Side lay in Truncheons or Sticks of Sallow, eighteen Inches or two Foot long, and an Inch diameter fopewise, cut at each End hollow like a Deer's Foot, the better to strike its Roots at bottom, and to carry off the Wets to them from the top; so that the Roots of the Thorns, and the lower End of the Sallow Pieces, will be near together in the Ground, but their Tops will be two Foot asunder, by means of their lying in a contrary Slope; upon these throw the next Spit of Mould, then plant a second Row of Thorn Sets on the first, and Earth them all over: By this Method there will be two Rows of Thorns and a single one of Sallow, and between them should be a Hollow or Furrow made for the reception of the Rain. Or after one or two Rows of Thorns are thus set, Holes may be made in the opposite Side, that an Iron Crow had just opened, wherein may be put the Pieces of Sallow fopewise, by which the Bark will be prevented slipping up, as it is very apt to do and die, when the Sticks or Cuttings are forced into the Ground of themselves; and when the Sallows are thus buried, there should only be left of them four or six Inches above the Earth, for the Shoots to come out at; this Hedge is best planted, and a three Foot Ditch made, in the Month of Octo-

ber

ber, but may be also performed in any of the Winter Months if the Weather is open; and is the best Sort I ever saw; for by thus setting the Sallows at a due distance, and more forward into the Field than the Thorns, the Workmen have room to cut them off from their several Stems without annoying the Thorns; so that they may be made twice in twelve Years.

But here I must observe that there is an objection made against the Practice of cutting the Sallows so often, because, say they, the Roots will after this often cutting, push out with more than ordinary Vigour; and the sooner wear out and die before their natural time, according to the Proverb, *One may ride a free Horse to Death*. To which I answer, that this Objection is not regarded by many Farmers; for that the Sallows being thus cut, the Thorns much better enjoy the fresh Air, free from the Drip and Shade of this taller Sort, whereby they have a more frank Perspiration and Inbibition of the nourishing Dews and Air; and notwithstanding this double Operation, the Sallows will get up and overtake the Thorns at the end of twelve Years; besides, a Sallow of all others is the easiest and quickest propagated; insomuch, that if a Stake is drove down into the Ground in any of the Winter Months when it is not a Frost, it is six to one odds if it does not grow; so likewise a small Stick or Cutting of a Foot or two in length will do the same, provided the Bark is not drove up at its Bottom, and it lie rightly in a loose, proper Earth; for this, like all other Vegetables, best agrees with its prepared Mould, and that Soil as Nature has adapted it to; as the Oak on a Loam, the Beech and Walnut on that or a Chalk, the Cherry and Beech refuses the Vale; the Maple and the Hornbean affect a dry Ground; so the Sallow best loves a loamy Ground with a moist

moist Bottom, though it will grow very well in loamy Gravels, and on any of the black, red, and white Clays; but the hurlucky, dry Chalks and Sands it doth not agree with, as being contrary to its fatty Nature: Thus the Apprehension of wearing out the Sallow too soon is of no great Stress, since they are so easily renewed; and also because there is so seldom a want of such Renovation; for I dare assert it for a Truth, by what I have heard and seen, that the Sallow Stem will endure fifty or more Years in a Hedge if rightly managed, by cutting off its Shoots close, smooth and sloping at each Operation; otherwise it may be spoiled in half the time; for this Wood being of the aquatick Family, is of a soft, spongy Nature, and therefore will easily imbibe and let in the Wets at its Stump, if it is left ragged or level, and then ensues Rottenness and Destruction; nor should it be cut too high, for that will hinder much of the Stem's branching and decay it the sooner; so that as the duration of this most serviceable Wood is valued, due Care must be taken at such times, to cut the Stem close, sloping and smooth, that the Wets may not be able to make their Lodgments, and this every judicious Workman is apprised of, and therefore this Hedge in particular should never be made by those that are not Masters of this useful Branch.

There is also another commodious Property belonging to such a Hedge, that is, here is generally Wood enough to supply all Deficiencies that may happen from the Huntsman and others, whereby considerable Sums are oftentimes paid for Damages, made by Cattle's breaking into others Grounds; or from the weakness of those Fences that are too often so slenderly made for want of Wood, that it becomes a Temptation to them to break through, and how important a strong Fence is,

is, every Chiltern Farmer must be very sensible of, that values his Money and Repose.

Such a Hedge best grows where there are no manner of Trees planted in it; for it is these that often reduce good Hedges into bad ones, by their unnatural Drips on the Underwood, whereby in length of Time they do more harm than the Value of their Timber amounts to, especially if they be Oaks, Ashes or Walnuts; these are so prejudicial to their lower Neighbours, both by their Roots and Heads, as to spoil their Growth by saturating and envenoming their Boughs by their Shade and Drip, and exhausting the goodness of the Ground about them. But I know that some are of Opinion, it is good Husbandry, when at the time of planting a Hedge, young Beeches or Cherry Trees are set in for Standards, in order to cut down at twenty or thirty Years end, before their Heads are so enlarged as to damage the Hedge. I must confess that of such sort of Evils, this is the least; because the Hedge and the Trees being young, have both their gradations of growth in proportion, so that the Hedge will become strong, before the Trees acquire Head enough to spoil it by their Drip; and as to the Cherry-Tree, it is a sort that least of all others hurts its Underwood by its Drip or Growth, which is owing, it is said, to the Balsamick Nature of its Leaf and Branch; however, where none of these Trees are growing, there will be no cause to complain of their greater or lesser Prejudices; and where an entire Hedge of only White-thorn and Sallow is thus planted, there may justly be expected to grow one of the best of Fences, that will return the most Profit of any other.

There are several sorts of Sallows, but it is the Land sort that I have wrote on, that is very common with us, almost in every Hedge and

T

Copse

Copse, and will grow on our dry Lands: Another of them there is that delights in wet, spewey Grounds, and is also a fast Grower: The third has a Bark somewhat reddish, its Leaves lesser and of a darker Green, and its red Wood very tough and durable. These all of them run up very fast, and turn to a considerable Profit in their Poles, that serve for making our Hurdles, Rails, small Rafter, and many other Utensils; and where it happens that one of these Sallows gets a Body of about a Foot diameter, they are then red-hearted, as I have seen and used several, and will rend into Pales, &c. or if kept dry, is said to last as long as Oak, which occasioned the old Saying, *Be the Oak ne'er so stout, the Solar red will wear it out.* But then it must be cut down before the large Worm takes it, that will sometimes eat into the Pith and other Parts of the Tree, so that a little Finger may be turned in their Holes. There are several Standard Trees now growing of it in a Wood near me, I believe some of them are thirty Foot high; and there was one lately cut down that grew among some tall Beeches, said to be sixty Foot high and fourteen Inches diameter, on a Loam that had a Clay Bottom, where they endure much longer than in the Gravels.

The Sollars Stems will sometimes produce ten or more Poles, eight or twelve Foot high, and are best cut down in Winter, for the Top and Chair Turners Use as well as all others; but special Care must be taken that they are not cropt by any Cattle, for their soft, tender Buds are greatly beloved by them; if they are, their Poles are spoiled and they will run into brouzy, spreading Heads.

In a Copse or Hedge the Sallows may be thickened, by giving a Pole a Chop at bottom, that it may easily bend to the Ground, where it must be kept forc'd down, by driving wooden Hooks in,
and

and then cover it all over with Mould in the nature of a Layer, leaving here and there an open Place for the Shoots to come out at, as is mentioned in the Chapter of the Elm.

The Sallow has a Property belonging to it, different from most others, and that is, that the Gollin or Seed of this Wood is of so light a Body, that it is often carried by the Winds, and conveyed to some distance, where in the Spring time it falls in many Places, and produces young Sallows. An Example of which is in an eleven Acres Field, about a quarter of a Mile from my House, laid down for an Oaken Wood about nine Years ago, by being sown with Acorns; here there are great Numbers of Sallows, spontaneously come up from these Gollins, and some of them are now four Foot high.

In a Copse, the Sallow is inferior to none, in its profitable, useful Productions, where the Soil is a Clay, or a Loamy Earth; here it best grows amongst the Oaks, sweet Chestnut, Cherry-Tree, Hazel and Hornbeam in Rows, at six or ten Foot asunder; I mean where the first Three are to be left as Standards at proper Distances, because these Trees have Tap-Roots, and seek great Part of their Food deep in the Ground; and the Hazel and Hornbeam takes up but a small Circumference like the Sallow. Or if a Copse was to be new made on such Land, I think none can return a greater Profit, than if it was entirely furnished with this sort of Wood, of which, my Copse and Hedges very much abound.

There is a sort of Improvement to be made by the Sallow Stake of four Foot long, if rightly managed; and for this purpose I shall put down the Notions of several of our Country-men. One says, that the best way is to cut a Sallow Stake at

bottom, sloping it four or five Inches long, and leave the Rind carefully on the other Side; this must be cut a-cross, and put a little Stone into the Slit and plant it. Another, that their Ends be soaked in Mudgel Ditch Water two or three Days, then cut them aslope at Bottom, and prepare a Hole, by driving in another Stick first, to keep their Bark from slipping up. Another says, that these Stakes should be cut just as the Sap begins to be in motion, and planted directly as before.

In *December* last, I found a few Sallow Stems amongst Hazels, and as the Hedge was making, the Workmen gave a Chop about half through the outer Bough at Bottom, and then bent it down close to the Ground, letting its Head lie out to the Ditch-side; but the Body that was about four Foot long, they covered all over with Mould, except at the Stem, where 'tis expected to throw up several Shoots the next Summer, and the Body make several Roots. Thus a Sallow Hedge has the Advantage of most, I believe I may say of all others, for this Property, because it may be thickned at Pleasure, with ease and certainty in most Grounds: Beech and Hornbeam will grow after this manner; but not one in six of the Hazels will take; Ash worse, Maple and Whipbean not at all.



C H A P. XXII.

The Nature and Improvement of the ASP or ASPEN.

NEXT to the Sallow, I have introduced the Asp, because I take this to have a great deal of the Sallow's Nature, for though it is of the watry Tribe, yet it will prosper in some high Grounds, but best in low, moist Places, and on all manner of loamy Lands; where, like the Fir, it will be fit to cut down in thirty or forty Years time, which makes them best of all answer in Standards, several of them growing on our high Common, that have about a Foot depth of Mould, and under that a red Clay, here they flourish and make a pretty Show by their trembling Silver Leaves, as some do in my Hedges that there grow as such. They are certainly a very useful, profitable Tree, where the Soil is agreeable to their Natures, and run to a great Height and Bulk in a few Years, but refuse sharp Gravels, Chalks and Sands. They are propagated in *October* or *February*, by Sets that must not have their Heads cut off, only their Side-shoots kept pinched off, that they may the sooner get out of Cattle's Way. Their Uses are many, in Boards, Somers, Joists, Chair-frames, Kiln-laths for the Malsters, and Pales for Parks: Some, for the sake of its whiteness and lightness, make Trenchers of this Wood; but it is apt to taint, and give an ill Scent to the Meat.

In our Church-yard there are now growing one Asp, and six white-wood Trees that were set of strait,
single

single Arms, put into the Earth upright and staked well, within six Foot of a Hedge, in a Row at twenty Foot distance, about thirty five Years ago; these measure about Foot in their Bodies, which is but narrow to some of the same sort, planted at the same time, on the same Soil, before our Parson's House; but this is accounted for, when it's known that the former are under large, spreading Heads, that commence from within seven Foot of their Roots, so that the Sap was chiefly employed in making Branches, when the latter were more in Body than Head; because they were kept trimm'd up in their Side-shoots to a great Height, and are thereby got near as thick again as the others: Now neither these, nor any of the Aquaticks are good Wood for Fire use, by reason of their great Spunginess; and therefore it's quite wrong to let these Trees grow more into Head than Body, unless there be a Demand for them by way of Shelter for Cattle, or to break off Winds; for the Body is much more valuable to the Carpenter, than the Head is to burn.



CHAP. XXIII.

The Nature and Improvement of the WHITE-WOOD.

THIS Wood proves it self to be of the Species of those aquatick Trees, the Poplar, Asp and Abel, by affecting and quick growing in the moist Soils and low Grounds, where the Sallow, Willow, and others of the watry Tribe chiefly

ly delight in. But this Tree seems to have escaped the Knowledge of all or most Writers, which certainly is an Aquatick, and grows with great Expedition in Ground agreeable to its Nature, as is that of *Chedington* Farm, and many other Places in *Bucks*, which I found out, and help'd a Gentleman to the Purchase of. This is a Manour, and one of the best, large Farms in the Kingdom, for goodness of Meadow, and Arable Land; and altho' in the Vale of *Ailesbury*, two Miles from *Wingboe*, there is a very high Hill belonging to it, containing many Acres of ploughed Ground, that is said never was dressed in the Memory of Man, and yet produces the best of all sorts of Grain: On the level Ground of this Farm, amongst White-thorn and Sollar, grows several of these White-wood Trees, that like the Poplar, hurts not its Under-wood as many others do. And also about *Eton*, under *Dunstable Downs*, where in both Places the Earth is of a black, fat, clay Nature; here this runs up to a great Height and Bulk, one whereof had fifty Foot of Wood, in only ten Foot length of the Ground end of its Body; and in the Head and other Parts, three hundred Faggots and several Stacks of Fire-wood.

It is an ornamental Tree, when planted in Hedges, or in Rows for Walks, and affords pleasant Views to the Beholders from its Silver-colour'd Leaves, and wettish, tall, strait Body and shady Head: Nor is this Tree confin'd altogether in low Grounds, but will also thrive and prosper beyond many on high Hills of Clay Bottoms, as several do near me, or in strong, loamy Lands; but not in Chalks, Sharp-gravels, or Sands, and is very near the Nature and Make of the *Asp*.

This Tree is propagated by its Truncheon, Layer, or Set: The first, by being put slopewise into the Ground, the beginning of *February*; the last,

last, by bedding its Roots in good, fresh Mould, and carefully covering them therein, about the same time, or in *October*; keeping the Head from its first planting, trimm'd annually up, that it may the sooner be out of Harm's way; but the Top-shoot must never be cut off.

I have seen several of these grow in one and the same Hedge where Elms did, but the White-wood got the start by a vast difference in height and bulk, and yet threw up great numbers of young Shoots from their spreading Roots, that even the Cows, Horses and Sheep did not keep down; but I suppose this was by reason of the unpleasant Taste of the Shoot: In the Vale, this Tree will grow from the very Chips, as they prove by Shoots that succeed in the Place where the Faggots were made; but this sort of Multiplication must not be expected, but in few Parts of the Chiltern, where the Ground generally is not so rich by far, as is that in the Vale; nor so loose and hollow as to receive the Chips Impression. The low Country-men sometimes call it *Dutch Arbel*, but the common Name among them is White-wood, from this Colour, that the Bark-leaves, and Body retains, beyond all others that grow in this Nation; and therefore is prefer'd by the Vale-men for making beautiful Cupboards, Dressers, Flooring-boards, Somers, Rafter, Joists, and many more Uses.

The Set is frequently put into new planted, or old made Hedges at every Pole distance, for the sake of its quick Growth in a fertile, soft Ground, where it is said to outrun the Elm by six degrees; as may be seen also at *Chedington*, on Mr. *Hudson's* Farm, who planted as many in his Life-time as are now worth one Thousand Pounds, and he has not been dead above three Years: These like the Asp, Poplar, &c. have a Seed or Gollin that hangs on the Tree, from the beginning of
March

March to the latter End of *April*, but the Set is chiefly made use of in these Parts.

And if any Gentleman has a mind to propagate this Tree, they may be furnished by me, with these Sets; that I can so order from *August* to *April*, as that they will grow if sent to any Part of *England* by the Carrier; and also with Oak, Beech, Ash, Elm, Sollars, Hornbean, Thorn, or Holly Sets; or with Acorns, Mast, Keys of Ash, or Maple, Seeds of Hornbean and several other sorts, provided I have timely Notice given me.

But here I would be understood, that the White-woods out-running the Elm so very fast on this wettish, flat Soil, is no general Rule; for here they both grow in a Hedge, where the Elms have not that Power to exert themselves, as the White-wood has; by reason here it enjoys its proper Food in a natural Manner from the waterish Earth about it, as being a true Aquatick, which the Elm is not; and this I prove thus: On a high Ground, about a Foot thick of Mould, and under that a red Clay in the Chiltern, grow both these Sorts not far off each other; where they are planted free from any other Invader of their Roots at proper Distances: Now here the Elm keeps Pace with it, as being in its more proper Soil and Situation than the White-wood.



C H A P. XXIV.

*The Nature, and Improvement of the POPLAR and
ABEL.*

THES E Aquaticks are propagated by Suckers, Cuttings, or Truncheons; by Suckers, that may be bedded and planted in fine, hollow Mould in Copses for Trees, in Rows ten Foot wide, and at twenty Foot distance among Oaks, Ashes, Chesnuts and Cherry-trees, and Underwood of Hazels, Sallow, Hornbean, &c. where the Soil is Clay or Loam, proper for its Growth; and here it will answer very well as one of those Sort, that seeks its Nourishment towards the top Earth, and be a natural Neighbour to the Oak, Walnut, Chesnut and Cherry-tree; by drawing a different Juice out of those many sorts that the Earth abounds with, whereby less damage is done to the next Tree than if they were all of a sort. By Truncheons, or Cuttings that may be buried in Banks, in watry, marshy Places, or by Sides of Ponds or Rivers, where they must be put in at four, eight or more Foot distance, two or three Foot into the Ground, and about half a one out of it slopewise; but if Success is expected this way, their Bark must never be slipp'd up at their putting into the Earth: This is so much like the Asp, that there is not much difference to be perceived; and these like them grow in our Woods, where the Ground has a moist Bottom; but they grow best in the watry Grounds, for here they have more plenty of their natural Food, than on our high, drier Lands, and will
arrive

arrive to a useful bigness in twenty five or thirty Years, that will serve their Purposes as the Asp will, for the Asp and Abel are both a sort of Poplar, that grow equally fast in tall, large Trees, and are alike encreased, and will suffer any Wood to thrive under them, without that Damage which most others will produce, because it does not spread (if it is trimm'd up) like the Oak or Walnut; the Leaves also are small, and commonly under such a tremulous Motion by the Wind, that they have not power to retain the Wets, that are often blown off from their high Heads, before it falls on its under Neighbour. For these Reasons, it is a pity that more of these Trees are not planted on our Loams, as well as in wetter Places; because they bring on a sudden verdant Sight, and Shelter about Houses and Gardens, as well as in wet Meadows and Marshes, to a very great and expeditious Profit.

And although it is a Wood less serviceable to the Fire than some is, because of its spongy, watry Parts, that abounds with less Salt and Sulphur than many others; yet that Defect is fully supply'd in the many Uses that this Tree is converted to, especially to the Chair Turner, who willingly gives five Pence *per* solid Foot if it is sound,



CHAP. XXV.

The Nature and Improvement of the ALDER.

BETWEEN *Hemel, Hempstead, and Watford*, in the low watry Meadows, and by the River that runs through them, grows the most Alder that ever I saw; in fine, long Hedges, where their large, high Poles shew themselves in a beautiful Prospect to the passant Travellers, and turns to a great Account amongst the *Barkhamstead* and *Cheeshunt* Turners of hollow Ware, who in that Commodity make more Consumption of this Wood and Beech, than any other two Towns in *Great-Britain*, as is allowed by good Judges; for with this Wood they make Dishes, Bowls, and many other serviceable Goods, that are lighter and softer than the Beech or Elm, and will bear turning thinner than most others; so that to pleasure Curiosity, a Dish of it has been turned in-side out like a Hat; and of this, many of the Frames of the matted and other Chairs in *London* are made; as are Pattens, Clogs and Heels of Shoes; Gates, Hurdles and small Rafter.

Its Wood is best in watry Foundations to build on, where it is said to harden like a Stone, and the very small heady Part will serve to lay in Trenches, that drain Land to keep it hollow for the Water to pass; but instead of this, I used some large Flints that I put together Archways, that answered compleatly to my purpose, by holding almost as good now as at first, though it has been
done

done these twelve Years, and the Carts are often drawn over it. Gun-powder is in part made of its Coal, and the Bark formerly was used by the Dyers, which obliged the Owners to fell it in *April*, for then it would run best; but now it is not so much used this way, because they have lately found out something better that supplies its black Dye.

The Worm is very apt to get between the Bark of this Wood after it is fell'd, and then it is greatly damaged for the Turners Use; but to prevent it, the Owner takes care to Bark it in time, for then it will bear keeping a long while, if it is not wet and dry, which rots it presently.

There is a peculiar beneficial Property belongs to this Plant, for no Beast will crop it, be it young or old, which saves the great Charge and Trouble of fencing it after making. Their Propagation is the same as the Poplar, and where a Place is too wet for that, the Alder will flourish in high, bulky Trees, Pollards, or Poles in Hedges; in short, there is none of the aquatick Tribe will raise more Money and sooner than the Alder, in wet, meadow Hedges, and in boggy, moorish Ground, nor make stronger, quicker Fences, than this excellent Plant will.

C H A P.



CH A P. XXVI.

The Nature and Improvement of the WITHY and WILLOW.

THIS Withy often arrives to a large Stature, especially the red Sort, that delights to be planted in high Banks, as Mr. *Worlidge* says, where they will strike their Roots deep into the Ground, by Ditch, Pond or River-side; these, like the Willow, will also grow in Clay or loamy Grounds, either in Standards, Pollards, or in Hedges, and are in great Numbers about *Baldock*; where many of them are sold to the Turners, for working out Dishes and other hollow Ware; some of them measuring two Foot diameter, will make Bowls as big as Bushels.

They are of a very quick Growth, and in few Years obtain a Red-Heart, to their white Pith or sappy Part, that will sell for six or eight Pence the solid Foot, and are propagated as the Sallow: The Willow especially is very easily multiplied; by sticking a Truncheon, or straight Piece upright into the wet or moist Ground by Watersides, from two to seven Foot long; sloping first the Ground like a Deer's Foot, and either the black, white, or yellowish Sort will make a speedy Growth; but the Pieces should be soaked in the Water four Days, or a Week before they are set in *February*, from eight to twenty Foot distance, keeping Cattle from cropping their Leaves; and also that their Side-shoots be kept trimm'd up
to

to the desired length, as well as their Suckers pull'd away in due time.

If they are not designed for a Hedge, which is seldom done, the Pollard is of a great Service in returning a Top at three or four Years end, that may be cut just before Winter, or in the Spring; and is of so great Use, that I have known it the only Wood they have in some Parts of *Rutland* in their open Fields; but it is seldom of longer duration than twenty or thirty Years, by reason the Wets are very apt to get in and rot its soft, spongy Body: Also in the Vale, where they have not the Hazels growing, the Willow is planted to supply it; for with their tough, long Shoots, they make their Withs for binding Faggots, and fastening down the Straw in thatching of Barns and Houses; this makes Hurdles, by their largest Shoots, that will endure much longer than the Sallow ones; besides many things in the Basket-makers Way.



CH A P. XXVII.

The Nature and Improvement of OZIERs.

THE Castle Gardener at *Barkhamstead*, suffered a great Loss in some of his Ground which he rented, that was constantly wettish, till he was advised to plant it with Oziers, and then it turned to a great Account. There are almost twenty sorts of them, that may be encreased by Sets of four or five Foot high, planted at three Foot apart, in Ground well trenched before-hand, that

that is got hollow and fine; then at three or four Years end in *February*, cut them to two or three Foot of the Earth, that they may get spreading Heads, and be fit for use in *September* following.

They serve abundance of Uses, particularly Fisher-men, Gardeners, Basket-makers, and many others.



C H A P. XXVIII,

The Nature and Improvement of white ELDER.

THIS I believe I may venture to say, is a new Chapter in Print, as well as the Black Cherry, Witch Elm, and white Wood, as being not wrote of in this distinct and ample manner, by any Author before my self, as I know of; tho' in my humble Opinion, they deserve the Preference to several others that have been more enlarged on, whose Uses and Value are far short of these excellent Trees: The first of the white Elder was introduced into these Parts, by the late curious *Simon Hartcourt, Esq;* of *Penly*, from whom I had many Cuttings, that now grow in my Garden-hedge to a great Height, and to an East and West Aspect, by which it enjoys the Rising and Setting of the Sun, that is more than ordinary necessary to the due Maturation of this Berry; because if they are not full ripe when gathered, their Liquor will be spoiled; as I understand, a Hoghead or two of their Wine was, by injudicious Hands; who seeing the Berries ripe on one Side, did not
examine

examine whether the other was so too; which caused their being gathered too soon, and their Wine eager in a little time: Whereas, if this Berry is gathered in a dry time, and full ripe, it has made a Wine, that has deceived a Gentleman I was in Company with, of great Judgment in many other Liquors; who took it for *French Frontigniac*, which it comes very near to, both in Taste and Colour: But this cannot be done without a particular Ingredient that I had an Account of from Mrs. *Carbury*, the late Minister's Widow of *Ivinghoe*, who was the most famous for this sort of Oeconomy of any in this Country, and which with several different Receipts, among other serviceable Secrets, never yet Printed, I intend, God willing, to publish as soon as I well can, if I am encouraged thereto by such as are Well-wishers to the good of their Country.

This Plant then may be propagated very easily in Hedges, or as Standard Trees: First by its Seed, after the Berries are squeezed; these may be thrown over a prepared Garden Bed, and covered with Mould half an Inch thick, and they'll come up the next Spring; after which they may be transplanted, till they arrive at a bigness fit to plant out for good; or by cutting off a Foot or two long, put slopewise into a good hollow Ground or Bank, in *October* or *February*, which will come up the very next Summer, and grow a Foot or two in length; but between each, a White-thorn Set should be put with its Head cut off: Then it will become a strong Fence, with the help of a Ditch for keeping out Cattle, and hold good many Years before the Elder kills it: This must be fenced in very securely from the Crop of Beasts, till it be got out of their way, which it will do in about three Years time, and bear plentifully of white Berries, that are generally bigger than the
X
red,

red, and superiour to them in Wine, that now begins to be much made of them, but whether wholesome I can't say; however, all Authors that have wrote on the Vertue of Elder, agree, that this Tree is of a general Good to Mankind, in the Liquor of its Berries, in its Rinds, and in its Leaves; insomuch, that I have heard it said, if any one Tree deserves the Regard of Men, this does, for its many Galenical, salubrious Uses; and particularly (if Report is true) for its being a very good Drink in an Asthma, &c.

And as the red Sort is now become so common, as to be sold in its Juice at the *London* Markets, I do not doubt but this in a little time will also become more universal, and be entertain'd as a most delicate, wholesome, pleasant Liquor at the greatest Tables, even to supplant in some Measure, the excessive Use of Tartarous Wines.

There is a potent Spirit made of these Berries, or the Red, by the Alembick, that will burn in a Lamp, if managed rightly in the Distillation; and also will serve in another excellent Use, which I intend hereafter to publish. And if any Gentleman or others, are desirous to get Plantations of this white Sort, they may be furnish'd by me, to most Parts, by the Opportunity of the *London* Waggon, having already sent some in this manner into *Somerſetſhire*.



C H A P. XXIX.

The Nature and Improvement of the several Sorts of
W H E A T.

THE Profit of our Wheat is generally reckoned to have two Years Rent dependent on it; that is, the fallow Year, and that in which it grows; the third being employed in what we call *Lent* Grain, as Oats, or Peas, or Beans, that seldom will bear a Reckoning, otherwise, than a Subsistence for our Horses and other Cattle; and therefore it mostly behoves the Farmer, to make a right Provision for the obtaining a full Crop of this most valuable Grain, that must lie near twelve Months in the Ground before it can be enjoy'd: In my first Part, I have wrote largely on this Grain; and now I shall further proceed in illustrating several Benefits relating to the same.

There is a sort at this time much in Esteem of both Farmer and Baker, that is chiefly sown in this Country about *Birkhamstead*: By some called White-wheat, by others, White, Yellow-lamas, by others, White-lamas, which last, I think is the most proper Name for it; that will return vast Burthens from the Field, and is a great Yelder to the Barn; sells near as well as any, grinds into a most excellent Flour, and will better bear with a lean Ground and rough Tilth, than either the red or yellow Sorts.

But to these Advantages, there are tack'd two Inconveniencies: For this delicate smooth Corn

having a very thin Skin, is apt to receive the Rains sooner than others; that will cause it in a little time to sprout out a small Radicle, and thereby do it a great Prejudice; from hence it derives the Name of Grow'd-wheat, that sometimes brings the Farmer under a very small Price in its Sale; and also is more subject than the Pirky, or the Dugdale, to lodge the Honey-dews, or what some call Mill-dews, which occasions it sometimes in dry Summers to be blasted, by glewing up the Ear and Kernel so tight, that it has not Power to enlarge it self; as may be seen by the Oak Leaf, which being smoother than others, becomes a readier Receptacle, for the easy Lodgment of this glutinous Body, than the rough ones are: But these Disasters, Thanks be to GOD, seldom happen, and therefore it is of no great Signification; because when they do, they generally affect others as well as this, though perhaps in some smaller Degree.

These Blights, by some are distinguished as different Sorts, and defined after this Manner. There are Blights, or Blasts that happen from too much Moisture in a wet Summer, and the Mill-dews in a dry one: The former, by the Fatness and Rankness of a moist Earth, that produces such high, large Stalks, as with the Help of the Rains and Winds, bends and forces flat down, whole Fields of Wheat before they are fit to Reap, which so Cripples the Straw or Stalk, that it hinders the free and full Ascent of the Sap, which is the chief Nutriment and Bringer forth of a full Kernel; whereby the Grain is maimed in the Ear, and from thenceforth (if it does not rise again) will be Diminutive, and lose perhaps one third or fourth Part of its Body, which it otherways would have, if it had remain'd standing: And this was the very Case of most Wheat Crops this Harvest, 1732, insomuch

inſomuch that it was ſaid, fifty Shocks, at ten Sheaves to the Shock, was thrashed at *Pitſtone*, on the Edge of the Vale, for five Buſhels of Wheat; and in the better ſort, two Buſhels and a half was a good Day's Work for one of the beſt Threſhers; which has cauſed the general Calculation to be but one half, or at moſt two thirds of a Crop of Wheat this preſent Year; for it was a common Obſervation, that few Ears had more than three Sets of Kernels, and many only two, that the Year before were moſtly five; ſo that our Wheat-ridder Sieves, were all too large holed for the ſmall, lean Corn that was thus blaſted by the Summer's Wets. I alſo further prove, that theſe Blights happen by the richneſs of the Earth, and the wetneſs of the Summer Seaſon; becauſe the beſt Wheat that *England* enjoyed this Year, grew on the pooreſt, dry Lands; which makes the old Saying good, *That the bad Husbandman has a good Crop once in ſeven Years*; ſo that it is plain, this ſort of Blight is different from that of a Mill-dew; though they both are the cauſe of a lean Grain, like Oat-grouts that make the Oatmeal.

The Blights of Mill-dews, is ſaid to happen in the dry Summer, by the Exhalations of the Sun, that draws up a moiſt Vapour from the Earth, by ſome, called the Spirit, by others, the Salt of the Earth; then, when it is coagulated and thickened in the Air, falls down upon the Wheat, Barley, Oats, Hops, Oaken-leaves, &c. both in open Fields and Incloſures, where it makes a Lodgment, like a ſticky Gum on their tender Parts, that ſo closes and locks up their Ears, and the Heads of the Hops while they are Green, and in a kerning Condition; that hinders in a great Meaſure their further Enlargements, as I before hinted; therefore it is ſaid (but uncertain) that the *Encloſure* is more ſubject to this, than the open Field;

Field; if so, it must be owing to the greater Moisture of the former, than the latter, where every thing is sooner dried by the large Space and Room there is for the Sun and Air's siccous Influences; but whether these Blights happen by Wets or Mill-dews, they are often equally prejudicial, by the great Diminution they both occasion to the Grain's Body, though they happen from different Causes.

It was on Account of the great Rankness of the Wheat, that many mowed it this last Spring, in order to check its further Growth; others fed it late with Sheep, to keep it down that way; this gave me an Opportunity to make Observations on the several Managements of different Farmers: One mowed it down very near the Bottom, in a low, wetish, black Ground, that was a rich Soil, and the Wheat very rank on *Easter Monday, 1732.* the Ear being ready to come out of its Skin or Cover; this backned it very much, and it proved a good Crop at Harvest; this was done by Mr. --- *Fen*, at the bottom Farm, near *Barkhamstead*. The Parson of *Auberry*, also mowed his about the same time, in an open Field, by only cutting off the Top-part, and it succeeded.

Another finding his Wheat likely to run too much into Straw, and too little into Ear, mowed it, and found it afterwards to shoot so weak in both, that he suffered by it.

Another says, under such Apprehensions, it's best to mow it early enough: That some have mowed Wheat three times, and had a good Crop; for Wheat has two or three Knots or Joynts; now if it is mowed late, it must be only just topp'd with the Scythe, for if then it be mowed below the bottom Knot, it's apt to kill it, or at least to cause its new Shoots to be so weak, that they'll come to little or nothing; but when Wheat is
mow-

mowed high, it shoots from the next Knot below the Cut, and often comes the stronger; as I have proved in a Field of my own, that I did for Trial sake. This sort of Husbandry is perfectly necessary, when Wheat spends it self too much in Chalk, as it did this Summer, 1732. more than in the Memory of Man; for if it is let alone, it will rot at Root, tumble down, and be good for little, as a great deal did; so that at *Risborough* by *Wender*, there was a Man had Five Hundred Fifty Three Shock, at Ten Sheaves each, on Five Acres of Ground, and forced to thresh Sixty Sheaves for a Bushel of Wheat. Here then are two Extrems in this Management; if it's mowed too low when it is high, then it weakens it too much; and if it is not mowed at all, then it's a Fault as bad as t'other; which made an experienc'd Farmer say, in my hearing, That many spoiled a great deal of Wheat this Year, by mowing it too low and too late.

Several others eat it down with their Sheep, and succeeded well; however, in this Affair, there is required a great deal of Judgment; for first, If the Wheat grows in a rich, dry Soil, clear of Weeds, then it may be made more free with, and eat down from *Christmas* forward. Secondly, If it is a wet, clay, or loamy Ground, and the Wheat thin, this Usage will be hazardous; because the Weeds here, will be apt to get up and keep down the Wheat; nor should it in either Case be fed in wet Weather; for then the Sheep by their Tread, will crush it into such hollow, wet Ground and spoil it, or else will pull it up with their Mouths: The same Care is also necessary, that it be not fed too late on such a Bottom; for Wheat on this cold, wet Land, won't recover so soon as that on more dry; and this very Case attended my next Neighbour, who this last Spring
fed

fed it so late, that it did not recover it self time enough, but proved smaller than ordinary in the Ear; therefore, several Farmers think it best to turn in betimes, and feed it while it is sweet, which often is from *Christmas*, till the middle of *February* or longer, when it begins to be bitter; and by thus turning in betimes, they will eat the Weeds before the Wheat. I knew a Farmer that kept his Yews and Lambs so long in, till they eat the Wheat up, and left the Horse-gold Weed, but he still kept them on till they eat or spoiled that too; but this so stunted his Lambs, that he said, he'll never do so again; Wethers indeed are far more proper for this Purpose, and will if kept long enough on it, eat up both Weeds and Wheat, provided the former are not too old; and if this Work is done with Judgment, it will both thicken the Wheat, and make it come up much stronger. Some thought themselves under a necessity to turn in Sheep when the Wheat spindles too early, as it will sometimes in *February* or beginning of *March*; but this may be partly seen beforehand, as they did this last *February*, 1731. when many turned in about the middle of the Month, and fed it till the fifteenth of *March* following, which did a great deal of Service that mild, dry Spring; but as I said before, where the Weeds are thick and the Wheat thin, this way murders it; because the Weeds will then get master, and choak the Grain. In Chalks and Sands, this Method is not practised at all, for here the Sheep will either paw it up, or pull it up with their Mouths in such loose, short Ground; besides, this Soil is not strong enough to carry it so forward as the Loams are, so that it seldom or never suffers by being Winter-proud in these lean Earths.

It is strange, that some part of a Field of Wheat shall be struck or mill-dew'd, when the rest escapes; this I cannot account for otherwise, than that its profitable Part of the Field may emit a moist Vapour into the Air, when the other Part does not; which being drawn up by the Sun in the Day, perhaps may fall down directly on the same in the Night; for it is allowed, that these Dews generally descend perpendicular: Or it may be, that the Breezes of Winds may disperse them here and there. Now this Mischief happens oftener to the later sowed Wheat, than to the forward and more harder; by reason it being more greenish in the Mill-dew Season than the other, the Blights have more Power to hurt its tender Ear.

But these Blights are observed not to happen so frequently as formerly, neither in the Inclosures nor Champain Fields, which have afforded matter of Speculation, that has employed my thoughts to account for; yet still dare not fix my self in the certainty of any one Reason for its so being; therefore shall only mention my Notion, that this may in part be occasioned by the better Husbandry, that now is more generally practised than in former Days; for it is notoriously known, that numbers of Estates have been improved within these few Years, by drawing the Water off from those Lands that were infested with them time out of mind; and thereby making them greatly more valuable for Corn, Grass and Wood, than they had been; as I have done by some flat Land in my home Close, by cutting a Gutter in the Ground, which I filled up with Stones, and now conveys the Waters into an adjacent Ditch, and so have prevented a standing Water on the same that used to stagnate; and in my humble Opinion, furnish Matter for those Exhalations, that these wretched
Y morish

moorish Grounds possibly may partly be the Cause of; as I have wrote further in my first Book, *Pag.* 70. whereby these Mill-dews are produced; and that more especially where the Sun and Air have not room enough to dissipate and expel their first Cause.

Besides it is also plain, that Farmers now plough their Ground better and oftner than formerly, and more particularly for the Pea, Bean and Turnep; whereby the Earth is brought into a hollow Texture, and is more enabled, easily to discharge the great Quantities of Water into its lower Parts; that otherwise would make a Lodgment on, or near its Surface, which likely might encrease those Vapours that produce the Mill-dews.

Now as there is no compleat Remedy known by Man, for the thorough Prevention of these Misfortunes, I have done what my small Capacity would give me leave, towards exposing the Nature and Mischiefs of these Blights or Blasts; that I know no other way to hinder and overcome, than the use of the Rope; the draining of wet Grounds and giving them their due Ploughings, and the not planting Trees in the Hedges of narrow Inclosures; for in the open Fields, when Wheat is fell'd and thrown down by the Violence of Wets and Winds, it is often raised again by the Sun and Wind's Strength; when in the small Inclosure, it remains blasted without Recovery for want of necessary Room.

The white-brown, and Red-pirky Wheat, won't strike so soon, or receive the mill-dew Blight, as the white, yellow, or red Lammas; as being of a more hardy, rougher Nature than any of them are; and therefore is much more sown of late, not only for its better resisting those Honey-dews, but also for growing very well on our poor Lands and

Tilths

Tilths; where it obtains a better Body than the yellow or red Lamas, and greatly yields in the Ear; which makes the Farmers say, The Pirks are a more sure Crop, than either of them; and sells in the Market for very near as much as Lamas; and is now become a more general Grain in our Chiltern Country than any other.

The Red Lamas indeed has the largest Ear and Kernel of all others, and reputed the most ancient and best Wheat for making the finest Flour; but this will not be so in our chiltern, lean Lands; because it requires a rich, loamy Clay, wherewith the Vales generally abound; and but few Places in our higher Country will furnish this sort of Soil; when 'tis ripe, it makes a fine Show, by its red, fire-colour'd Straw and Ear; as does also the yellow Lamas, when in its best appearance; and is not inferiour in its Flour to the Red.

But this White-lamas Wheat is, and will be more sowed (in my Opinion) than ever in our Chiltern, for it's agreeable Growth in our high Grounds; and is remarkable for an even Kernel throughout its Ear, beyond all others, and the vast Crops it returns even on our poor Grounds; and sometimes worser Tilths, which Properties cannot be said either of the yellow or red Sorts. Also for the whitish, yellow Cast of its Skin, which causes its Flour and Bread not to show so Coarse as others will.

The Dugdale, Coarse Wheat is much of late rejected by our Farmers, and therefore sown by few; however, there are some that sow it for the great Conveniency it affords above all others in growing on sour Tilths and poor Grounds, as on one Ploughing up of Clover or other Grass; it is also good to shelter St. Foyne and Clover, sown amongst it in *September*; it will not

be mill-dewed or blighted when others are, by reason of its Beards; nor will it receive the Wets like others; and therefore when Wheat in general is grown by Rains after it is reaped, this will prove most excellent to grind amongst it; its Hardiness makes it be sown much in the North, where it will grow if sown late in the Spring.

*An Estimation of the Charge and Profit of the
Wheat C R O P, for the Year 1732,*

R ENT for one Acre of arable, inclo-	1.	s.	d.
sed Ground at Little Gaddesden,	0	12	0
for one Year - - - - -			
Dressing the same Acre - - - - -	1	0	0
Two Bushels and a half of Seed at three	0	7	6
Shillings per Bushel - - - - -			
Ploughing three times one Acre, at six	0	14	6
Shillings the first, and four Shillings			
each the two last times, and one Har-			
rowing - - - - -			
Reaping and Carrying the Acre of Wheat	0	6	6
Threshing three Loads - - - - -	0	3	9
		3	4
Whereof receiv'd for three	1.	s.	d.
Loads of Wheat contain-	2	2	0
ing five Bushel each			
Straw and Chaff - - - - -	0	11	6
		2	13
			6
		Loss	0 10 9



C H A P. XXX.

The Nature and Improvement of the BARLEY.

THIS Summer, 1732. Barley was throughout the Chiltern Country a good Crop, that generally yielded about four Quarters of an Acre, by reason the Spring was dry, and the sowing Season consequently good. This was succeeded with a showery Summer, that brought on plentiful Crops; so that some, especially in the Vale, was laid; but that was only in a few particular Places, that did not affect the Price of Barley in general; for about *Michaelmas*, it sold here for twelve and thirteen Shillings a Quarter, in all our Markets, having had a most fine, dry, cool Harvest, that gave us an Opportunity of Inning it in very good Order, which by course must cause it to sell very much to the Master's Profit.

This Year was attended with better Success than the preceding Summer, for that was long time without Rain, and the bottom Grains come up, while the top ones lay dry, so that at Harvest there was both green and ripe Corn, that made a great deal of bad Malt; for when Barley is cut green, though it be housed dry, it will shrink, and be a thin, lean, green Body, when it is threshed; notwithstanding, I had then a most lovely Crop, by means of liquoring my Seed according to the excellent Receipt mentioned in my first Book, Page 25. By thus soaking the Seed before its Sowing, it is brought into a sprouting Condition, sooner than if sown dry; and from thence forwarded by the power of that most natural potent Spirit,

Spirit, with which the Seed is impregnated: This brought on a Head or Shelter very quickly, that proved of great Importance in the succeeding Droughts, because by the thick and large Head the Barley thereby received, the upper Corns that lay on or near the Surface, obtained a Cover that shaded it, and lodged the nocturnal Dews that fell in the scorching Seasons which then followed: whereby the Crop in general came gradually on, and was more even than any about me that was not so served; and yielded more than any I ever had before, and yet sowed only three Bushels on an Acre according to that Receipt. Therefore I would advise all Persons whatsoever, that sow Barley and other Grain, to make constant use of, and pursue the Directions of this or the former Receipt, and they may depend on it to have their Expectation fully answered, as I have proved by Experience.

This Summer, the forward sowed Barley was ripe generally sooner than the Wheat, and there was some so rank, that grew, I heard, about *Stony-Stratford*, that they mowed it, and had several Loads of Hay, and yet had a good Crop of Barley at Harvest.

Another at *Dagnal* in *Bucks*, kept his Sheep upon it, and fed them till the first Week in *May*, but took Care not to eat it quite bare; this tam'd its Luxuriancy, and brought on a strong, full Crop.

But these Operations ought to be attended with Judgment, else Barley may be as well spoiled as improved, as it happened once by a Lord's Manager, who seeing a Crop that he thought too rank, ordered it to be rolled to keep it back; the Man had not long proceeded, before an experienc'd Person convinc'd the Chieftain he was wrong; upon which he desisted, but spoiled what had been
crush'd

crush'd; for it is to be supposed, the Barley was then spindled, and the Chalk so bruised by the Role, as hindered it afterwards from coming to good.

Barley is a Grain that won't shed like other Corns, and therefore in the Vale, where they have open Fields, and no Hedges nor Woods, in some Places they let it stand till it is at full Maturity, mow, and carry it away the same Day, or the next after, and so proceed, often cutting and carrying against the Danger of Rains; because there rank Barley of these rich Grounds lies so thick, as makes it difficult drying it again; by which Method they are the more sure of having good Barley, and then they may depend on having good Malt; for this prevents the Kernel shrinking, which it will be sure to do if mowed too soon. Yet the Malsters say, that if it stands till it is very ripe, it thickens the Skin, makes it high colour'd, and more unfit to make pale Malt: And that if the Corn gets a redness, it will not make pale Malt at all.

Barley is a tender Grain, that cannot so well as some others endure the Frosts and cold chilly Wets that often overtake it, when it is sown early in the Spring, and bring it under a red and sometimes a yellow, dying Colour. And therefore too-soon sowing is often as great a Fault as too-late; but when this Misfortune chances to happen, then the warm Dressings of Soot, Ashes, &c. give a great Relief towards its Recovery: Yet this last mild Winter, 1731. a Farmer by St. Alban's, sowed Dugdale Wheat (as being the hardiest and coarsest Sort of all) on a Barley Stubble on one Ploughing, and harrowed it in: The Wheat thrived, and the beginning of April the Barley was in Ear, from Kernels accidentally left in the Ground.

In Lands naturally wet, it has been practised as a good Piece of Husbandry, to plough it the last time into Stitches, and harrow them well down, and then sow the Barley and harrow it in. This is done to secure it against the Fury of Wets and Colds, which it's more than ordinary liable to in the Vale and flat Lands.

An old, rich Man that rents a considerable Farm, had a great Crop of Barley, that he could not sell for more than twelve Shillings *per Quarter*; the Price so provok'd his Avarice, that he would not part with it for that Year; but the next he offered it to Sale again, and was refused by the Malsters, who would not venture on it, on any Account, as fearing it would not rightly work; but the Owner malted it, and it came very well; the rest he sowed, but first tried a little to see if it would spire. So that it's plain, Barley will malt and grow, if kept two Years or more, provided it did not suffer by the Heat of the Mow.

An Estimation of the Barley Crop, as it generally happen'd in the Chiltern Country in the Year 1732.

	l.	s.	d.
R ENT of one Acre of arable, inclo- sed Ground for one Year - - - }	0	12	0
Ploughing three times and Harrowing - - -	0	16	0
Dressing one Acre - - - - -	1	0	0
Four Busbels of Seed - - - - -	0	8	0
Taxes and Tythe for an Acre, paid by the Tenant - - - - - }	0	4	6
Mowing and Cocking - - - - -	0	2	0
Carrying three Loads from the Field - - -	0	3	0
Threshing four Quarters - - - - -	0	5	0
	3	10	6
			<i>Whereof</i>

	l.	s.	d.
Whereof received for four Quarters of Barley, at 14 s. each - - -	2	16	0
For Straw and Chaff	0	11	0
	3	7	0
Charge	3	10	6
Loss	0	3	6



C H A P. XXXI.

The Nature and Improvement of OATS.

THIS is a hardy Sort of Grain, and best of all agrees with, and flourishes in the worst Tilths, in the poorest Grounds, and in the coldest Climate; is truly necessary to the Farmer both in House and Stable, and pays sometimes better than Barley, as both last and this Year sufficiently proved: The Oat in the first sold for twelve Shillings per Quarter, when the Barley was sixteen; and now the Barley is fourteen, and the Oat twelve; so that the Price has but a very small difference, but the Charge a great one; for it's well known, that the Charge of a Barley Crop is not much less than that of a Wheat; as may be thus proved, *viz.*

Z

For

For the Year 1732.

R ENT for one Acre of arable Ground, one Year in the Inclosure at Gaddefden is	}	1.	s.	d.
		0	12	0
Ploughing and Harrowing once - - -		0	6	6
Seed four Bushels - - - - -		0	6	0
Mowing and Cocking - - - - -		0	1	6
Carrying four Loads - - - - -		0	4	0
Threshing and Cleaning four Quarters, at 1s. each. - - - - -	}	0	4	0
Taxes and Tyth that the Tenant pays for one Acre. - - - - -	}	0	4	0
			<u>1</u>	<u>18</u> 0

Whereof received for four Quarters of Oats, at	}	1.	s.	d.
12s per Quarter - - -		2	8	0
For Straw and Chaff - - -		0	11	0

2 19 0

Profit, 1 1 0

Oats in many Grounds are made use of in fat-
ting Hogs, especially when Peas are dear, as they
were the last Year, 1731. for then five Bushels
were worth eleven Shillings with us, and the
Oats twelve Shillings per Quarter; these they
boil in a Copper till they become very plump,
and produce a Quantity of Liquor which they
improve, by putting Bran, Barly-meal, Oatmeal
or Ground-rye into it, and so make a sort of
Broth or Bouillon, that alternately they give the
Swine: With both these, they fat great Numbers
of Porkers and Bacon Hogs, that they bring to St.
Andrew's Fair, at Brackly in Oxfordshire. But by
the way I must observe, their Reason for so doing,
in my Opinion, is, because their Grounds are too
poor for the Bean and Pea; or that they are thought
dearer than the Oat for this Use, which made a
Neighbour

Neighbour of mine one Year fat his Hogs with dry Oats; but that can never be so good a way as with the boil'd one; nor can I think the Oat (the boil'd one especially) will make so firm a Bacon as the Bean or Pea, though perhaps as sweet; for it is certain that the looser the Food is, the looser is the Meat.

IN some Places in the Vale, they sow Oats for a Change to the Ground, lest it degenerate under the constant Growth of certain particular Crops; therefore are Oats frequently sowed, but then they are the white Oats; for in the rich Grounds, the black ones run too much into Stalk, and less into Ear; when the white Ones, that have a more leafy Stalk and draw more Nourishment from the Ground, bear to a great Encrease a large, bulky Grain, sometimes almost as plump as Barley; 'tis this, and not the black Oat that is here meant for fatting of Hogs.



C H A P. XXXII.

The Nature, and Improvement of the P E A.

MANY are the different sorts of Peas that are sown in this Kingdom, whereby the Farmer has his Choice for a proper Soil, Climate, and Season; but for my part, I sow at present only three sorts, that I have found to answer best; and they are the Horn-grey, Maple, and Blew-pea. The first is accounted with a great deal of Reason, the hardiest of Hog-peas, and is of a good Size, and preferr'd to all others for the chalky Soils, where it will admit of being sowed forwarder than any other, which is a Perfection very much in fa-

your of this Ground; because by this means it enjoys all the Spring Wets in this dry Soil, and thereby obtains an early Head that covers, shades and defends the Earth about them from the scorching Heats of Summer, that otherwise would dry up and wither their Roots: Also on Gravels this Pea has the like Success, which makes the Farmer sow them in these two Soils presently after *Christmas*, where they strain them in after the Plough in broad Lands, and harrow them afterwards, till they are almost ready to appear; in-somuch that about *Ivinghoe*, and many other Places, they sow no other sort but this in their Chalks and Gravels, on one Ploughing after Wheat or Barley Crops.

The Maple is a larger and sweeter Pea for the Hog, but somewhat more tender: This is chiefly sown all over the Chiltern Country in *March*, and is found to make the best Returns of all others in both Grain and Straw; and therefore the present Practice mostly runs in an equal mixture in these two sorts of Peas, that are sown together about the seventh of *March*, in several Manors and in several Soils; and this for the better Assurance of a Crop, for if the Maple should miss, 'tis hoped the Horn-grey will hit; which is having two Strings to the Bow; as is also often done after the very same Method, by sowing a mixture of seven Pecks of Peas, and seven Pecks of Beans on an Acre: This way proved exceeding well this Spring, when the Beans were the best Crop ever known; while many of the Peas were spoiled by the Chill of Wets and Frosts that attended the whole Month of *May*, 1732.

The blew Pea is a more tender sort, and is sown both earlier and later in *April*, on prepared Ground that has been twice Ploughed: This Pea oftentimes returns great Crops, is a most sweet
sort

sort for any of the culinary Uses, and also fatten Swine in a very short time; but the Haulm or Straw of this Pea is not so good for Horses, as that of the Horn-grey or Maple; because this is apt to gripe them, and bring on the Yellows, that sometimes prove fatal if not taken in time; and is first discovered by the white of the Eyes being turned yellowish; for which, bleeding, and cordial, sweetning Drink is the best Remedy. This Misfortune is said not to be owing so much to the Straw, as the Peas, that is generally left in after Threshing, which being of a softer Nature than all other Peas, is thereby more endowed with this pernicious Quality. But there is great difference in the Nature of this Pea; some of them will boil in a little time to a great Softness, others require a longer time, and some will never boil to sweet and kind: The Reason of this, I take to be owing to the particular Juices of the Earth wherein they grow; for that of the stiff Clays is commonly churlish and sour; that of the Loams much better; but that of the Chalks, Sands, and Gravels exceed all others in Sweetness and Quality; therefore the best boiling Peas are allowed to come off the three last Soils.

The Horn-grey is best to grow with Beans, because it will endure to be sown with them at *Candlemas*, agrees with all sorts of Ground, and will better bear with one Ploughing than any other: These two Kinds have each their reciprocal Benefits; for the Pea will shade the Roots of the Bean, and keep off the parching Heats and Droughts of the Sun and Wind. The Bean also will, by the Strength of its upright Stalk, keep up the weak, bending Haulm of the Pea, and cause it to kern and ripen kinder and sooner.

The Vale-men in their open, low Fields, whose Ground is in Heart, won't sow Peas alone, or
Beans

Beans or Peas together (which they call Half-ware) because then the Sheep can't weed amongst them, and eat up the wild Oat and Curlock which often infest them; but in the clean Beans they turn in their Sheep till Blossom-time to eat up these Weeds; then they take them out, lest they rub them off.

Peas in our Chiltern are sown several ways, and to find out the right, a Person sowed them after three different Methods in one Field, *viz.* The first was on Wheat Stitches, which was done by a Man's following the Plow, and straining them in; and afterwards harrowed till they were almost ready to appear. The second was on a Barley Stubble that was once ploughed, and the Peas directly harrowed in. The third was on another Piece of the same Stubble, where the Peas were first sown by Broad cast over the same, and ploughed in as they do the Beans in the Vale: The two first ways did not succeed so well as the last; for it being a wet Summer, the Peas that were ploughed in broad Lands, made their way through, and proved the best Crop. The Stitch was next best; but those only harrowed in lay sometimes dry, and when the first hasty, great Rain fell, they burst, and so the Owner miss'd of that part of his Crop.

Remarks on the foregoing Method.

FORMERLY I lost a Crop of Peas by sowing them after the second way; it was on a Barley Stubble that I sowed my Peas, and then ploughed them in, and harrowed it directly; but my Plough-man did not harrow them enough, which caused them to lie too much under Cover; so that when the Rains fell, this gravelly Soil became so bound, that the Peas could not get out.

out. Therefore this sort of Operation is best performed in loose, loamy, mouldy Ground, and harrowed well down, that the Peas may without difficulty make their way out with their soft, tender Heads. It also oftentimes happens that these Peas only harrowed in on broad Lands, lying almost on the Surface of the Ground, are not only expos'd to the devouring Vermin; but by the heat of the Sun and dryness of the Weather, they shrivel up, and dye away for want of a due Moisture. The best way then that I know of, and what I now frequently practise, both in Gravels and Loams, is to give my Wheat or Barley Stubbles two Ploughings in the Winter, after the manner shewed in the Chapter of Ploughing, and at the proper time in the Spring sow half my Seed all over the level Ground, and plough it in; when that is done, I sow the other half all over the top, and harrow them in; this is half Underthorough, and half Over, and exceeds all others except Drilling. The most common way is this, if Peas are to be sown on the Wheat Stitch; then they are strained in after the Plough, and harrowed well afterwards. If on a Barley Stubble, some do it two several ways; first, they do it, by running the Plough up one Thorough and down another near the first, whereby a Ridge or Bout is made; this lies great part of the Winter as a Stitch; on this in the Spring, they plough and strain in the Pea, as they do on the Wheat Stitch, and harrow down; Now this is either done on Gravels, Loams or Clays; in the Clays it is certainly the best, because the Pea in this cold Ground is more delivered from the Chills of Frosts and Wets; in the Loams the same Management is most agreeable; and on the Gravels, either the Stitch or broad Land is right: But here is a particular sort of Risque attends this Soil; for if the
great

great Rains presently succeed the sowing here, they are surely bound in and come to little, from the hardness of the Crust of the Gravels, that so fastens and binds them, as not to suffer the Pea to come out and enlarge it self: This was the Case of many Acres this last Spring in the Gravels, where some Showers fell on the sowing of the Peas, and spoiled a great many Crops; so that *Paul* may plant, and *Apollos* water, but 'tis *GOD* that gives the Encrease; for those that were sown in a dry Season, did very well almost every where: It is that makes Farming such a Lottery, that there's no Assurance of any Crop of any sort, because all Field Vegetables are expos'd to the Rigours of Weathers. And it's further plain, that Gravel is the most binding Earth of all others, from the great Use of it in the *London* Pavements, where, after their Work is finish'd, they spread the Gravel over it, to keep it together against the most ponderous Carriage: So here the very Haulm, or Stalk is so bound and lock'd up, as not able to encrease its Bulk, and so pines and dwindles to the loss of whole Crops; this was very visible in our fifty Acres common Field this Summer, 1732, where the Loams return'd excellent Peas; while those in the rashy Gravels of the same Field, went off by the Rains binding them in.

For this very Reason, as well as to further the Growth of the Pea as other Grain, it is of late discovered, to be excellent Husbandry to chalk these Gravels, which at first, I must own, seem'd to move my wonder, to see a warm, dry Soil dress a warm, dry Soil; but Experience warrants the Truth of it; for there is a third Nature in the Chalk, which effectually answers the Intention; and that is, its dilating loose and shattering Parts; this being contrary to the Gravels binding Quality, makes their two opponent Properties agree, and

and become one most natural Soil (as does also Sand) fit for almost every Grain or Grass, except Beans.

This then on such a Mixture, becomes a loamy Gravel, and is allowed by the Judicious, to be of a knitting, kerning Nature, that will more surely run into Corn, than any other Ground, provided they are thoroughly ploughed, dressed, and a wet Summer ensues. And when this compounded Earth is obtained, that it may be the more compleat, if twenty Loads of long Horse-dung was ploughed into an Acre, and Barley harrowed on the same, it will lie and become a watering Pot to retain the Wets, and keep this dry Ground moist, a long while after the Rains have fal'n, and so likewise for a Wheat Crop.

This therefore is a most natural Dressing to a hungry Gravel, and this will do instead of Coney-clippings, Rags, Horn-shavings and Hoofs, as I have formerly hinted.

The beginning of *May*, 1732. came in with North and East Winds, attended with some heavy Rains and Frosts; this so crippled the Peas, as to cause many of them to be somewhat Red-headed and die: For as the Maxim is, when they go away in wet Weather, on red or yellow Clays, or wet, loamy Grounds, they seldom or never come again; but if they fail in dry Weather, they often recover. In this sort of wet cold Weather in the Spring, it is, that the Chalk that has been laid on, and ploughed into the Clays and Loams, does a great deal of Service to the Peas, by absorbing the Wets, and keeping the Roots loose and warm; as also does the several Ploughings for Peas, which so meliorate and hollow the Earth, that the cold Water gets down and lodges below the Roots of the Peas, and so preserves them from that Chill, that otherwise perhaps would have destroyed them,

and this is the more apt to do it in Grounds but once ploughed, and that are sour, clung and heavy; yet is there this difference in Variety of Seasons that affects the Pea. A Field was sown with Peas in wet Weather, and another in dry; a dry Summer succeeded, and those sown in the Wet proved the best Crop; because by the close Texture of the Earth the Water was retained; nor could the Sun and Air so easily penetrate, dry, and parch their Roots, as in the more loose Ground.

Now as all Chalks and Sands are of a hollow, spongy, dry, and warm Nature, the Peas that grow in either of these Soils, notwithstanding the Excess of Wets and Colds that often make them Red-headed and pine, generally recover again and be good Crops, while those on Clays and Loams entirely perish.

These several foregoing Reasons, caused many good and bad Crops of Peas this Harvest; and therefore I shall make my Estimate of them, as near as I can, according to the Medium of both, viz.

	l.	s.	d.
R ENT for one Acre one Year -	0	12	0
Ploughing and Harrowing once -	0	6	6
Seed four Bushels - - - - -	0	8	0
Hooking and Cocking - - - - -	0	2	6
Carrying four Loads from the Field -	0	4	0
Threshing eighteen Bushels of Peas -	0	3	8
Taxes and Tyth - - - - -	0	4	0
	2	0	8

Whereof

l. s. d.

Whereof receiv'd for eighteen

Busbels of Peas, at 1 s. 10 d. } 1 13 0

per Busbel - - -

Straw and Chaff (two Cart

Loads of Straw, and eight } 1 2 0

Busbels of Chaff.) --

----- 2 15 0

Charge 2 0 8

Profit 0 14 4

The great Varieties of Peas, are certainly attended with Varieties of Qualities, both in respect of Soils, Seasons and Feeding, which deserves the particular Regard of all those who are concern'd in their Growth and Feed: In Soils I have taken Notice of some already; but here I shall further observe, that in sandy Grounds beyond *Leighton-Buzzard*, they run chiefly upon the Blew Pea, which this Earth is found to endow with a great Sweetness and Soundness, as it doth also the Turnep and Carrot; and as this is a tender Pea, that loves a dry, warm Ground, here it is delivered from standing Wets, and receives more than in any other Earth, the warm Reflection of the Sands, that ripens them early, though they are sown late.

So likewise the Poppin or Poplar Pea, is a fine brown Sort, with a black Eye, that requires to be sown late, as in the beginning of *April*, and yet will be ripe generally before the Wheat; this is a large sweet Pea, rather bigger than the Maple, and will return a very great Crop: They were first introduced into our Country by a great Farmer from *Berkshire*, and is now much in request, especially for sowing in Drills made by the Plough.

and hoed by Men, as is mentioned in my first Part, *Page 35.* and also for fast feeding of Swine; but is a little apt to make the Flesh loose; and so is the blew Pea, which being the sweetest and softest of any, will cause the Flesh to be more limber and flabby, than the Bean or any other Pea.

The Maple is a brave large Pea, feeds well but not so hard as the Horn-grey, which is reckoned the best of all Hog Peas, for producing the firmest Flesh: Now all Peas are more greedily eat by Swine than the Bean, because, they are sweeter, go farther, and will fat sooner, which makes many say, that they had rather give ten Shillings for a Load of Peas, than eight for a Load of Beans for fattening of Hogs.



CHAP. XXXIII.

The Nature and Improvement of the BEAN.

I Shall enter upon this Subject with an Account of the former and present Practice that is now on Foot about *Ailesbury* and *Tame*, where the Farmers are under as good Reputation for right Vale Management as most in *England*; and this they have more than ordinary Encouragement for, especially about *Ailesbury*, by reason their Land is so good, that they sow three Years together, and fallow the fourth. Here it is then, that they have very much left off the former Fashion of sowing their Horse-beans broad Cast, or on the top of the Ground, and then ploughing them in; because by sowing them in this promiscuous random

dom Manner, the Sheep have not that Opportunity of such an open free Passage to and fro, to come at their Meat, as they have by sowing them in a more regular Method, as I shall shew by and by. Also their other old way of setting Beans is now much laid aside, to give Place to the more new and better one, for formerly Men, Women, and Children, used with a Stick or Dibber to make Holes in the Ground, and others would follow and put them in. To amend this, there was a more late Invention, that was to make the Holes at an equal Distance, by the Spoke of a Wheel, like that in a Barrow, which a Person followed and dropt in the Beans; this also proved both tedious and chargeable, and is mostly done with.

Wherefore the present Practice and best of all is perform'd thus: The Foot Plough has a Bin or Hopper affixed to it, that will hold about half a Bushel of Seed, and so made, that as it is drawn along a Thorough, the Bean falls gradually out of the same at equal proper Distances; when this is done, they plough another Thorough that fills in the first and covers the Beans; in this second they sow nothing, but proceed to sow a third as was the first; this is sowing one Thorough and missing the next, whereby an exact Distance is left throughout the half Land, between Thorough and Thorough; this, they harrow clean down, and by this Method, the Sheep have a sort of a Path-way left them, to feed on the Grass and Weeds that grow amongst the Beans, which gives them an Opportunity better to destroy the Cuckoo, Wild-oat, Hairy-bind or Hell-weed, and other Weeds that generally infest this sort of Cod-ware: The two first are easily destroyed by the Sheep that are turned into the Beans when they are not above a handful high; but the last is a most

most destructive Weed that runs Miles together, if the Crop of Beans grows in that Length of Ground; here it will twist and fasten its thready Entanglements to them almost from top to bottom; and where it fixes, there it wounds both Bean and Stalk, till it ruins all or most part of the Crop by its prickly Pines: But where this takes its Original or Root from, has been the Inquiry of many Farmers, whose Attempts have proved vain, as not being able to make a true Discovery thereof; which has occasioned a Notion that its first Rise or Root is directly from the Bean Stalk, as Moss is from a Tree, and so from each Stalk 'tis thought to receive its Subsistence, and wounds and destroys the very Stalk that breeds and feeds it.

Now by this Method of sowing the Beans out of the Hopper in Thoroughs or Rows, at about sixteen Inches apart, the Sheep that are the only Doctors to cure this horrid Disease, have more Room than formerly to make their Marches amongst them, and thereby are, as it were, directed in quest of the several Weeds between the Rows; so that in their Passings and Repassings for some Months together, they consequently meet with, and very much break asunder the tenacious Parts of its running Binders.

There is also a second great Benefit in this new way of distant regular sowing of Beans, for here is that Room given for the Sun and Air to come at their several Stalks, which is not in former Methods, whereby the Blossoms are much sooner dry'd after the Rains, that not a little contributes to the Improvement of the Bean; for it is surely true, that Wets are often grand Impediments to the kerning of the Bean as well as other Fruit, by washing off the flowery Part or impregnating Seed, that is the chief Cause of the Beans and other
Fruits

Fruits Germination; This is plain to the very Hedger, that the more room any Vegetable has, the better it sets for Fruit, and bears the greater Crop; for where the Sun has most room, there it has most Influence, for the setting, kerning, and Production of Fruit. It is for this very Reason also, that the Farmers Hopes for a plentiful Crop are enlarged, when he sees a dry time for the Bloom of the Wheat, which cannot perform its due Office, if too much Wet falls in that Season. All which Benefits have yearly yielded more and more Encouragement to the Farmer to proceed after this new Method, because they have not sustain'd that Loss from these Weeds as heretofore, since their Sheep have had more Room to come at and destroy them: And now the Vale Farmers, particularly about *Ailesbury*, are brought under a universal Agreement to let them feed amongst the Beans till the twentieth Day of *May*, when they take them out for good, lest they eat and spoil the Blossom, which they will certainly do by their Mouths or Rub, if they can come at them.

In the Vale they reckon themselves under a better chance for a Crop of Beans when they see the Ground turns up Flitch-thorough, as they call it; that is, when the Earth is sowed and ploughed, it proves wet and heavy, this a Bean dearly loves; for then they are not in very great apprehension of the Hairy-weed, Wild-oat, nor Curlock.

Nor are they in any fear of burying their Bean in such heavy Earth, because it being a black fat Mould, inclining something to a Clay, will by the Frosts, Rains, and Winds, so shatter, crumble, and become hollow, as afterwards easily to let the Bean out; but if they are forced to sow, and plough the Bean in, when their Ground is in a dry, light Condition; they generally are attack'd with that fatal and other Weeds, so that they never dare give their Ground two Ploughings for Beans.

Next

Next I come to treat of another Distaster appertaining to the Bean, that (Thanks be to GOD) seldom happens; because, when once it has got a full Power, I never knew it curable by the Art of Man; nor ever knew it happen in such a great Degree as it did about five Years ago; and then it became a general Calamity in many Places, both in Chiltern and Vale amongst the Beans. At first it's plain that a Honey or Mill dew was the previous Cause of the same, for this fell in that dry Summer so thick, as shewed it self a glutinous Substance, in great Quantities upon the Heads and Stalks of the Beans, where it soon bred an Insect, called by some *The Dolphin Fly*, of a black Colour, and about the bigness of a Till; these encreased into Swarms that hung on the Beans Stalks, and devoured in some Lands, both Blossom, Beans and Leaves, so that great Numbers of Stalks appeared naked, while some other Lands in one and the same Field better escaped; in short, there was not half a Crop, and they not so good as at other times which enhanced the Price to above twenty-four Shillings *per* Quarter.

Now to account for this Malady amongst the Beans, I can only say, it is my bare Conjecture, as I have said before in the Chapter of the Wheat, that in dry, hot Summers, the Exhalations of the Sun are more powerful than in wet, cool ones; because in the latter there are not those Quantities of Vapours, drawn up and let fall as at other times; and those that are, by consequence are of an aqueous, thin Body, and therefore not capable of making Lodgments on the several Vegetables; as they do in the dry, hot Seasons, when there are greater Quantities exhaled; and they more thicken'd into this gluey Substance, that falls and does the Mischief.

Here then appears also more of the Excellence of this new Method of sowing out of the Hop-
per

per in Distances, for that, as I have before hinted, the Sun's drying Power has more Room and greater Force to attract and exhaust the Wet amongst the Beans, before they can emit a stagnated pestiferous Vapour, that not only perhaps encreases this Malady, but also in some measure may be the Cause of Fevers and Agues, that are said to be occasioned by the insidious Particles of a bad Air, as is obvious from the many Parts of *Kent* and *Essex* that abound in low, wet Grounds, where the Ague in particular is more rife than in other Places, as I have experienc'd to my Cost, when I lived at *Upnor* near *Rocheſter*; and here I had also another Reason to remember this Situation, from the nightly Vexations of the troublesome Knats, that are thought to be bred from the Putrefaction of the Air, that the V and Sullidge which the Waters leaves on the Ground is the chief Cause of.

Also amongst Trees, I know a Family that lives in the midst of them, seldom ever healthful for want of that space that others enjoy who live in less Shade and Closure, and partakes more of the Sun's and Wind's drying, salubrious Benefits. Therefore I infer that all Cover, whether of Beans or other Corn, or Trees, &c. have all their Tendencies in the Retentions of Wets, and the many ill Consequences arising therefrom.

Here likewise is more room for two Men to shake the Heads of the Beans with a Rope, presently after the Mill-dew is fallen on them; which supplies in a great Measure a good Shower of Rain, that often timely falls, and happily washes off this sort of Bird-lime consistence.

In light Grounds, such as Chalks, Gravels and Sands, this Grain will not prosper, which made it formerly so seldom sown in the Chiltern Country; however of late, I may say within these ten Years

past, they are more sown than even in Clays and Loams, that are found to be many, even in *Hertfordshire*; in these Soils, in some Years they grow wonderfully and return prodigious Crops when the Peas are kill'd by the severity of Weather (especially in Clays and Loams that have been chalked.) A greater Instance of this, I believe never was known, than the Summer 1732, every where afforded; insomuch that they were reckon'd the best Crop of all other Grain.

Notwithstanding this is the biggest Grain of all others that is sown in our Fields; yet it is often buried in our red Clays, by reason these stiff, cold Grounds, being of the most surly Nature, will not shoal, shatter, nor crumble, like the black and blewish Clays in the Vale, that yield even to the very Rains and Winds; when the Frosts and other Weather, that happen after the Beans sowing, often prove incapable of reducing this Land, so as to let the Bean have an easy Passage out with its Head: Wherefore I have known it done at *Whipsnaud*, three Miles from me, for a few Years past; that they have sown the Beans after one Ploughing, by broad-casting them on the Surface, and only harrowed them in, which has done much better than formerly, when they ploughed them in, as they did in the Vale. And though it may be thought strange that this way is preferr'd, because of the great Exposure the Bean lies under to the voracious Birds, Vermin, and Weather; yet it has been by Experience found to answer best here, because most of the Beans will get into Thoroughs, and there be buried by the Harrowtynes; for this sort of Ground by its sticking Quality, will more easily fasten about and hold the Beans, whereby its nutritive Parts is the more easily communicated, and forces on the Growth of this Grain, that most naturally agrees with
this

this sort of Soil. And if some is carried away, there may a small Allowance the more be given in the Quantity sown. Now this Seed is so liable to be bursted by Wets, and shrunk by Droughts in such Earth at *Candlemas*, when they are throwed into the Ground as the Pea is, that in such Soil it must not be sown till *March*, for this gets both Root and Head by that time, whereby it is better able to resist the Extremities of Weather than the Pea, that is of a more tender Nature. The Horn-bean is justly called so from the great Conveniency it gives the Farmer, to feed his Horses with: This has made it a Rule with many of them, that when the Bean sells for ten Shillings *per* Load, and the Oat at twelve Shillings *per* Quarter; that they buy the former, if they have it growing, and sell the latter that they have; because they allow, that this Quantity of Beans will go further in the Manger than a Quarter of Oats, especially if they are split, which almost every Miller and Malster are often employed about,

An Estimation of the Bean C R O P, as it generally happened in the Chiltern, in the Year 1732. that was the greatest that ever I knew in both this and the Vales.

		l.	s.	d.
R ENT for one Acre of Ground one	}	0	12	0
Year - - - - -				
Ploughing once, straining in the Beans	}	0	7	6
and Harrowing - - - - -				
Seed four Bushels - - - - -		0	8	0
Mowing and Cocking an Acre of them		0	5	0
Carrying four Loads out of the Field		0	6	0

		1	18	6
B b 2		Brought		

	l.	s.	d.
Brought over - - - - -	1	18	6
Threshing and Cleaning thirty Bushels of Beans - - - - -	0	5	0
Taxes and Tythe - - - - -	0	4	0
	2	7	6
Whereof received for thirty Bushels of Beans } l. s. d.	2	14	0
For Straw and Chaff -	1	0	0
	3	14	0
Profit	1	6	6

The Horse-bean, as I said before, is a Grain that is often buried in our Red-Clays, and stiff Loams, and that by reason the Head of a Bean is broader than any other, and therefore makes its way out of the Earth with Difficulty, which causes some to think it is smothered sooner in the Ground, than either Wheat, Barley, Oats or Peas. In the Chiltern we generally sow them at *Candlemas*, in four Thoroughs made on the Wheat Stitch, by straining them in each Thorough after the Pea Stitch Plough, and then harrow the ground well, as soon as they are sown: Others will sow half Beans and half Peas after this manner, and mow them together at Harvest; but then this way requires good Care in cocking, raking them together and turning them, that they may be dry'd thoroughly, and black in Stalk, Leaf, and Pod: Others sow them on a level Wheat or Barley Stubble, and plough them in Under-thorough, and harrow the Ground very well after: But to do this, that the Bean may not be buried, the present Practice is to plough such Ground with a Fin on the Sharr of the Wheel-plough, by which the Earth

Earth may be turned almost as you please; and by good Harrowing, the Bean will be deliver'd from this Casualty.

The Reason why we sow Beans in our Chiltern, on Wheat and Barley Stubbles, and not that of an Oat or Rye, is, because that this is a Grain that agrees with a rich Ground, for to say right, the Ground cannot be too good for the Bean, as being a large rooted and stalked Grain, that draws a great deal of Nourishment, and returns not a little back to the Earth, by killing the Weeds with its great Cover, and thereby keeping the Spirit of the Earth in some degree from being too much exhausted by the Sun's Attraction, and supplying it with those nitrous Dews, that its Stalks, Leaves, Blossoms and Bodies often make a Lodgment of.



CH A P. XXXIV.

The Nature and Improvement of THETCHES *and* TILLS.

THETCHES are of several sorts, as the great Horse-thetch, and the smaller sort, which by some are called the Winter-thetch; these are very profitable if sown in a right Soil, and at a right time; the Horse-thetch was sown by a great Farmer at *Penly*, in *February*, and only harrowed in upon his fallow Ground on one Ploughing, for his Horses, Cows, or Sheep to feed on the following Summer, either in the Rack or Field, and the remainder to plough in, a Fortnight or Month before they sow their Wheat; on this they harrow

harrow their Wheat, and dress it with short Dung, or Fold on the top. The smaller *West Country* Winter-thetch is sown in *September*, for Food for the Sheep, &c. in the Winter and Spring: They first sow them Broad-cast all over a Piece of Chalk, Gravel, Sand, or Loam (for wet Ground is not proper for them) and then plough them in Under-thorough, where they will make their way thorough the Ground, as being a most hardy Grain, according to the Comparison of an old Saying --- *A Thetch will grow through the Bottom of an old Shoe* --- And therefore many sow them amongst Peas, because if they miss, the Thetch generally hits: Their dry Haulm is but coarse Fodder for Horse or Cow, but the Corn is good for Pigeons, and to give store Hogs; three Bushels sow an Acre, and often return twenty.

Tills, are the smallest sort of Cod-ware that are sown, and lesser than the Thetch, as that is the Pea, and the Pea the Bean: They are sown on the poor Chalks, Sands and Gravels, where neither the Thetch nor Pea will thrive; there this will flourish and produce great Quantities on its upright Stalks, that grow about a Foot and a half high, are sowed alone, or with Oats, and make the best of Provender, given in the Rack as it comes out of the Field, which the Cows and Bullocks will greedily eat, and fatten very fast under its keeping; Swine also are great Lovers of the Tills, and will pick up what falls on the Ground, and be much forwarded in their Flesh; Pigeons are great Lovers of them, as being very natural to their Bodies. In many Places they sow these for their Horses and Cows instead of Hay, and commonly put Chaff into their Mangers, for the Tills to fall amongst; as the Horses and Cows pull the Haulm out of the Racks, that supplies the want of Hay and Oats: One Bushel
sows

sows an Acre, and generally returns fifteen. They are often sold for three Shillings a Bushel.

The following is the Coppy of two Letters, writ by *William Hayton, Esq;* from his House in *Clerkenwell-Green*, to his Son *William Hayton, Esq;* Clerk of the Peace for *Bucks*, who lives at *Ivinghoe* in that Cquntty.

GUILLIAUME,

‘ I OBSERVE you are to keep Court at *Gades-*
‘ *den*, where lives one *William Ellis*, a Far-
‘ mer; I understand he is related to *Dick Shil-*
‘ *burne*, by Marriage: This *Ellis* has written a
‘ Book, entitled, *The Practical Farmer, Or, Hert-*
‘ *fordshire Husbandman*, containing many new
‘ Improvements in Husbandry; I have bought
‘ this Book, and find it has already born a second
‘ Edition; I let *Anderson* read it, and design to
‘ send it him down, as soon as I have a little bet-
‘ ter considered his Motions: But what I have to
‘ desire of you, is to enquire of him, for I sup-
‘ pose he will be in Court, the same Question I
‘ have been so long labouring to get answered,
‘ viz. How many Bushels of Wheat, Rye, and
‘ Barley, an Acre of midling sort of Ground (such
‘ as your common Field Land may be computed
‘ to be one with another) does generally produce,
‘ in what they call a midling Year? ’Tis a general
‘ Expression among Farmers, that this Year we
‘ have not above half, or two thirds of a Crop;
‘ but such a Year we had a fair Crop, or a Crop
‘ and a half, or such like; without mentioning
‘ what Quantity they mean by any of the afore-
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‘ what Quantity they mean by any of the afore-
‘ mentioned indefinite Terms, of half, two thirds
‘ or the like random Computation. This Gen-
‘ tleman goes on in the same way of describing
‘ Crops;

‘ Crops; in some Places he says, by such and
 ‘ such Methods, vast Crops have been obtained;
 ‘ in other Places, such things yield very conside-
 ‘ rable Crops, and such a one obtain’d vast Crops;
 ‘ but the Reader is every where left in the Dark,
 ‘ except in two Places, *Folio 23 and 29 in his Ver-*
 ‘ *bis.* ---At *Dagnal*, a Man that has but an A-
 ‘ cre of Land has sown it seven Years together,
 ‘ and never less than six Quarters and a half of
 ‘ Barley grew on the same; and ----- Another
 ‘ that folded on his Turneps, had nine Quarters
 ‘ on five Roods of gravelly, loamy Ground; in-
 ‘ deed I have just now found another Place, which
 ‘ I will repeat, because it relates to the good Town
 ‘ of *Ivinghoe.* --- It frequently happens that the
 ‘ chalky Grounds near *Ivinghoe*, about two Miles
 ‘ from me, bear eight Loads of Wheat on an
 ‘ Acre; in short, the Book seems to be as well
 ‘ wrote as any one I have met with on the Sub-
 ‘ ject; and if the Gentleman will be so kind as
 ‘ to answer my Question in plain *English*, I shall be
 ‘ very much obliged to him, and promise to have
 ‘ a Bottle of Wine at his Service, if he will be so
 ‘ kind as to call at *Clerkenwell* when he comes next
 ‘ to Town.’

A Copy of the other LETTER.

GUILLIAUME,

‘ **A**FTER scaling my last, I recollected an-
 ‘ other Question I had to ask Mr. *Ellis*,
 ‘ and that’s about Rye ----- Rye is a Grain that
 ‘ he speaks the least of, or about, in his whole
 ‘ Book; I think the whole Chapter does not con-
 ‘ tain above one Page, whereas he bestows a great
 ‘ many more on every other sort of Grain that he
 ‘ treats

‘ treats of; perhaps ’tis because but little of that
 ‘ fort grows in *Hertfordshire*; or because he is not
 ‘ willing to encourage the Growth of it in that
 ‘ Country; or whatever his Reasons be, my Reason
 ‘ for troubling him, is to be instructed how to
 ‘ improve it in *Northumberland*.

‘ And first I would be informed how to dress
 ‘ the Land preparatory to receive the Seed? And
 ‘ then I would desire to be instructed how to dress
 ‘ the Seed preparatory to sow it on the Land?
 ‘ that is, whether to brine it, lime it, foot or
 ‘ soak it in Urine, Stable-stale or any other Com-
 ‘ position; or whether it must be sown dry? For
 ‘ he says, wet is so great an Enemy to it, that a
 ‘ Shower of Rain will drown it in the Hopper;
 ‘ why then should it be sown, as he expressly says,
 ‘ in *Autumn*, about *September*? And a little fur-
 ‘ ther in the same Chapter, ’tis soon up after ’tis
 ‘ sown, and sooner than Wheat, and also sooner
 ‘ in the Ear, usually in *April*; and ’tis given as a
 ‘ Reason why it should not be sown as *Masceline*,
 ‘ or mixt with Wheat, because the Rye will be
 ‘ ripe much the sooner; and if sown on different
 ‘ Land, may be mixt afterwards.

‘ And I remember an old rhyming Proverb;
 ‘ *April every Year produces Rye in the Ear*; from
 ‘ what Mr. Ellis says, about the quick Appear-
 ‘ ance above Ground, the soon earing, and the
 ‘ soon ripening of this Grain, I am inclin’d to
 ‘ think it may be soon enough to sow it in the
 ‘ Spring with Oats and Barley, &c. for I have
 ‘ been told by some *Russia* and *East Country* Mer-
 ‘ chants, I formerly discoursed about sowing Hemp
 ‘ and Flax at *Short-flat*, because it lay in the same
 ‘ Latitude with the *Baltick*; that the Rye of that
 ‘ Country, which is esteemed the best in *Europe*,
 ‘ is generally sown, ripe, reaped, and threshed
 ‘ within the compass of two Calendar Months.

‘ I am the more pressing to get proper Instructions in this Affair, because I have this Week, bought and shipped for *Newcastle*, several Quarters of Rye to be sown out of hand, or as fast as he can get the Ground ready, and the Rye brined in the same manner as Mr. *Ellis* prescribes for brining Wheat: Now if I am wrong, either in point of time to sow it, or in my Orders about brining, I must follow him with contradictory Orders as soon as possible; I repeat therefore what I said in my last, that if Mr. *Ellis* will favour me with a short Letter in answer to this, and those other Queries mentioned in my last, I would esteem it a singular Favour done to his humble Servant.

‘ That my Meaning may not be mistaken, I have repeated my last Queries.

Queries.

‘ QUERY, How many Bushels of Wheat, including the Tyth, may be called a fair, customary, or moderate Crop?

‘ Or how much may be computed to grow one Year with another (meaning those Years only that the Land is sown with Wheat) on an Acre of midling, common Field Land, neither of the most barren, nor of the most fruitful; but such as may be taken in a medium, one with another; and with moderate Dressing, neither too liberally, nor too sparingly manured?

‘ And whether there be any difference between the Product of the forementioned Land, and Inclosure of the like midling sort of Soil, neither best nor worst, and both alike midling manured?

‘ The like as to what Quantity may be produced on the same sort of Land, when in turn
‘ it

‘ it comes to be sown with Rye, Barley, Peas,
‘ Horse-beans, Oats? ’

LONDON, *October*, 19, 1732.



C H A P. XXXV.

The Nature and Improvement of RYE.

THE Answer to the foregoing Letters I intend shall be the Theme of this Chapter, wherein I have endeavoured to answer the ingenious Gentleman's Queries, but not in such an elegant Manner, as I must confess his Parts and improving Genius deserves from a better Hand than mine; however, I have wrote the best of my Knowledge, as my plain Capacity would give me leave, *viz.*

SIR,

YOUR Letter to your Son was communicated to me at our Court, and I am heartily glad to oblige you with the Answer I am capable of, to the Queries you were pleased to mention. As to the Quantity of Wheat that commonly grows on our common Field Land, I am confin'd to an Estimation of it according to the Nature of the Ground. If on a true Loam, as we have on our hilly Land at *Gaddesden*, we generally have four Loads on an Acre one Year with another for a single Dressing, with the Fold, Cart, or Hand; nor does our Inclosure here answer better, for the

one is as good Land as the other; this I call a customary, moderate Crop (including the Tyth) on our Tith Ground. On our Gravels, below the Hills, as much, both in Inclosure and Field Land, that are here also alike, if they are well dressed; for though this is more hungry, and not of so rich a Nature as the loamy, yet by its more kerning Quality, we have often as good Crops as on them; but it must be more assisted with Manures. The Chalks in the common Fields are now so improved, that they also return as much Wheat as the Marly-vale Soils, even from four to eight Loads on an Acre; but with this difference, that a double Dressing on this white Ground, is but equal to a single one on them. Sands likewise have their peculiar Properties, as they are richer or poorer, and require Dressing, and Grain accordingly. In this, Soot nor Ashes are proper Manures, because of its loose Body, that won't retain their light ones so long as the Loams, Gravels, and Chalks will; and therefore with Fold, Cart-dung and Rags, it receives the best Improvement for the Growth of Rye, Peas, Turneps, Thetches, Tills and White-oats; for Wheat, Barley and Black-oats do not answer here so well as in some Loams and Clays: But the Rye in particular agrees with this dry Earth, and also on the Chalks and Gravels, where it commonly returns the former four Loads on an Acre, for sowing two Bushels and a half. This is a Grain that certainly exhausts the Ground to a great Degree, as I have known it do on a loamy Gravel, that I could not recover in six Years; after a good Crop of this Rye was got off, by a Tenant that rented the Land before me, who sowed it on one Ploughing, presently after other Grain was got off, in *August*, for only his Sheep to feed on in the Spring; but this grew so well, as encourag'd him to let it stand for

for a Crop, and he had such a good one, that vastly impoverish'd the Ground; so that wherever Rye is sown, the Earth ought to be well dress'd to prevent the like Disaster. This Grain is allowed by one and all that I have conversed with, to require a Winter and part of two Summers to grow in; and therefore they sow it in *August*, on a fine well dressed Tilth, if for a Crop; but if only to feed Sheep in the Spring, they often venture it on only one Ploughing, after Wheat or Barley, and harrow it in on Broad-lands; then if it comes thick, they feed it in the Spring, but not too bare, and let it remain for a standing Crop; Thus by eating it with Sheep, the Rye shoots the stronger; and the rather for the Assistance of their Dung and Stale; but if it proves thin, the Farmer then alters his Measures, and ploughs it up for Peas or Oats. The Reason for this early sowing, is to get it a Head betime, that it may better endure the Severities of the Frosts and Wets, that otherwise would endanger its dying away, as being not so hardy a Grain as Wheat: For this so much affects a dry Soil, that it utterly refuses wet, low Grounds; and therefore, the better to secure it against these Misfortunes, where any degree of their Mischiefs are suspected, they sometimes sow it in Stitches on fine Tilths; or if in Grounds, that won't admit of this way, they sow it in broad Lands that are ridged up, as they do in the Vale, in order to carry off the Wets more easily: To prove the Veracity of this, the Men about *Chedington* and *Ailesbury*, never so much as attempt the sowing of this Grain, as well knowing their Labour would be fruitless, both in respect of their marly, clayey, black Earth, and their low, watry Situation.

For as it is the Nature of Rye to grow best in dry, hollow, warm Ground; this stiff, cold, aqueous

ous Land is contrary to its natural Quality; as much for ought I know, as it is to St. Foyn, that is notoriously known to refuse all stiff, wet, fat Earths; because both their Roots, I suppose, would rot in the chilly Waters, that this Soil most tenaciously retains, and that perhaps, by reason of their spungy, tender Parts, that are more observ'd in them than many others; or else, that their Roots disagree with the unctious, marly Quality of this Earth.

It was a few Years since that I received the Rents of *Chedington* Farm, in the Vale of *Ailesbury*, for its Landlord, while he was on his Travels abroad; and it was there, that I had an Opportunity of acquainting my self with the Nature of this Land, which so much abounds with Water, that the Springs sometimes rise within four foot of the Surface; and yet these Parts lie higher than many, I believe I may say, most others in this low Country; so that even here they can't enjoy a Cellar for the Stowage of their Liquors: For these Reasons also I imagine it is, that our Cherry and Beech Trees cannot be naturalized to this Situation and Clime, as better agreeing with our higher Loams and Chalks.

So likewise as to the Turnep, Pea, and Black-oat; these they cannot have in most Parts of their low, wet, fat Ground, because the excessive richness of this Soil, runs the one into most Leaf and less Root, and the others into more Straw and less Ear, which obliges them to chuse the White-oat for its better bearing, by its larger Stalk and Leaf, with their rank Ground: But even this succeeds but indifferent; for I knew a Tenant that sowed twenty Acres of them, the Season before he was obliged to leave his Farm, in order to impoverish the Ground, and do despite to his Landlord; but they came up so thin, by the disagree-
able

able Wets and Colds, that he made but little of them; for here they generally sow no other than Wheat, Barley and Beans.

And now I come to my Answer of setting Rye in an unusual time, never practised as I know of in *England*.

It is true, that Custom does not authorize a wrong Practice, no more than Antiquity should hinder a better one; for undoubtedly, all Improvements had their rise from industrious Disquisitions, and experimental Trials, that by time spread their Knowledge, and become general Practices, to the enriching of the many Countries that share in their Benefits; from hence it was that we now enjoy the Field, Turnep, Clover, Lucern, and the several other Grasses that are at this time made free Denizons of our Clime, which were most of them Exoticks within these sixty or seventy Years: So likewise the goodness of Soots, Salts, Ashes, Lime, Rags, &c. were hidden Secrets about a Century ago, that now are common to the most rustick Swain. For these Reasons, it is most commendable in you to endeavour after valuable Improvements, because such when obtain'd, not only redound to your Honour and Profit, but to the Common-wealth in general; which plainly shews the great Good that often accrues to a Country, from such a Person, whose Abilities and Genius are extensive enough to forward such profitable Atchievements: But where the latter, industrious Part is, and the former wanting, there are undoubtedly many most useful Branches of such Importance lost, for want of those Encouragements that able Men are capable of Administring; and perhaps would be Acts of some of the greatest Benevolence and Goodness they could imploy their Talents in. But to the Matter in hand.

I knew my next Neighbour two Years since, upon a Pea Stubble on one Ploughing, harrow in two Bushels of Rye, on a loamy, moist Acre of Ground, that lay very near my House, which was intended purely for his Sheep at Spring; it was sown about *Michaelmas*, but very little appeared above the Earth, and what did, proved hardly worth turning Sheep into. Now this was done by the oldest Farmer in our Parish, who has rented, I think, sixty Pounds *per Ann.* these thirty Years, yet was not sensible of his Mistake, till Experience became his Monitor. For he was wrong both in his Season and the Quality of the Earth; for all Loams are moister, colder, and sower, than Gravels, Sands, and Chalk; and therefore he ought to have sown it more forward, and been assured it was a good Tilth; whereas, though it was a middling Crop of Peas, and the Ground tolerable hollow, yet I am perswaded, it was not sweet nor loose enough, for it lay flat, low, and something wettish.

There was another about two Miles from him, that miscarried much upon the same Account; wherefore I take these unsuccessful Attempts to be owing to Male-management; for the Grain should have been sowed earlier, in a drier and sweeter sort, as I have hinted before. But if late, as in *September*, *October*, or the Spring, then it is my Opinion, if there is a Possibility to have a Crop from Seed sown at those Seasons, the following Method should in some Measure be observed.

First, Such Ground should by due Ploughings and Harrowings be brought into a fine Tilth. Secondly, It ought to be Gravel, Sand or Chalk, or Ground partly of their Natures. Thirdly, That the Seed be sown in a dry time and form. Fourthly, That it be steeped but twelve Hours instead
of

of twenty four ; according to my new Receipt in this Book ; because it has a thinner Body and Skin than Wheat, and of a more dry Nature. Fifthly, That it lie afterwards all Night on a good Drain, and in the Morning well limed and sowed. Sixthly, That immediately before the Seed is sown, twenty-five Bushels of good Stone-lime should be shot down on the middle of an Acre, and directly slack'd, by throwing Water on it ; then some Men with their Gloves on, should sow it out of a Seed-cot as thin as they can, as we do Soot, all over the Piece of Ground, and then sow the Rye in Stitches as soon as you please. But if it is to be sown in broad Lands, the Case, is altered ; for then presently upon the Grounds being ploughed the last time, and harrowed once in a Place, the Seed must be sown broad Cast all over it, and then the Lime must be shot down, slack'd and harrowed in at the same time with the Rye. Or, if it is thought better, the Seed may be first harrowed in, and the Lime slack'd and sown in Powder all over the Ground, as we do Soot. Or if Coal Soot is to be had, there's nothing exceeds it, by sowing twenty-five Bushels on an Acre, either on broad Lands or Stitch, a Day or two, or a Week or Fortnight after the Seed is sown ; for the Salts of the first, and the Sulphur of the last are most agreeable to such late Sowings ; and this I have seen by good Experience answer in an admirable Degree ; for when by the Frosts and chilly Wets, other Grain turn'd yellow and died, that under the Lime and Soot, flourish'd with a blackish green Colour, and proved a noble Crop. Or else instead of the Soot, Salt be sown over it, to the Quantity of five or ten Bushels on an Acre ; this I am almost ready to believe will answer the desired End of obtaining a Crop of Rye, sown in *February* or *March*, by the same Rule that we sow

D d

Wheat

Wheat in *January* and *February* after Turneps, as I have more amply wrote of in the Chapter of them.

For it is certain, that Art helps Nature to a high Degree, and the more, according as it is better adapted; as I remember in the Case of an Asparagus Bed. A Gentleman that had a desire to raise this pleasant plant on a loamy Ground, that had a red Clay within a Foot and a half of the Surface, was told that it could not be done; for that such a great Person had tried for one on the same sort of Ground, but it would not do; however, it was attempted, and a large deep Pit dug into the Clay, and fill'd up with Chalk, and Roots planted in Mould on the same: The Asparagus grew; but in three or four Years complained, by coming up small; occasioned by the chilly Effluvia, that proceeded from the Water lodg'd at the bottom of the Pit; this was a sort of half Performance; for now they have got a more effectual way, by not breaking the Ground at all, but raising a Bed of Horse-litter and Mould, to the height of three or four Foot, and on this they plant their Roots to great Success; for here the Water has not room to make a Lodgment, and hurt the Plants by its chilly Vapour. I have also another Reason to mention the Asparagus, that formerly by most Gardeners was treated as one of the most tender Plants of the Garden; but of late it has by experimental Observations been found to be one of the hardiest in the Kitchen Garden. Here then is a plain Demonstration of the Rectification of two Errors, that remain'd as such for ought I know hundreds of Years; and yet but very lately seen thorough as fallacious.

By the same Rule there may be an Amendment in the Management of Rye, and undoubtedly in many other things.

I knew

I knew an ingenious Gentleman, and a Lover of Improvements, sow some Rye every Year in one Place or other of his Ground, in order to kill the Fern and Feed his Cattle; in other Places he draws his great Roller over it, to spoil its Growth, by bruising its green Stalks; but where but little of it appears whipping it in its first Rise, is prescrib'd as a good Remedy.

I buy my Salt Peter or Nitre of Mr. *Edward Wamsley*, Druggist on *Snow-hill*.



C H A P. XXXVI.

The Nature and Improvement of Artificial
GRASSES.

I have thought it a plain and expeditious Way, to write of the Improvement of the Artificial Grasses; by transcribing a Shop Bill, that was given me where I bought some Seeds in London, and making my Remarks on the several Sorts as they follow each other, viz.

HOWEVER the Use of Dung, and other Manures, have prevailed in most Countries, for the Improvement of barren Lands: We find by Experience, that by the Choice of proper Seeds only, many Grounds that have been esteemed Unprofitable, have been rendered so fertile, and produced such valuable Crops, that they have returned forty or fifty Shillings, and sometimes

three Pounds an Acre *per Ann.* to the Owners ; and brought the Lands where they were sown, into such an advantageous State, that the Proprietors have gained large Fortunes by such Management.

There are Instances in many Parts of *England*, of Heaths, Commons, and waste Grounds, that were not esteemed worth six Pence an Acre, which have been render'd so valuable, by sowing some of the foreign Grass, and other improving Seeds upon them, that considerable Estates have been gained by that sort of Culture, even though no sort of Manure was used upon the Land ; and considering the Difficulty of bringing Dung to some Lands, and the Scarcity of it in some Places, the Method of Improvement by Seeds is judged preferable to others ; and by the same means large Tracts of Land which at present lie idle, may be fertilized to that high Degree, as to be equal in their Value, to most of the richest Lands in *England* ; for let the Soil be what it will, whether Clay, Chalk, Rocky or Sandy, Wet or Dry, one or other of the following Seeds will agree with, and render it profitable.

The Sorts which are the most approved, are the following, *viz.*

- I. *Trefoyl* or *Nonfuch*.
- II. *Clover*.
- III. *St. Foyl*.
- IV. *La Lucern*, or *Medic Clover*, or *Snail Clover*.
- V. *Rye-Grass*.
- VI. *Low-Grass*.

The Improvement of Land by Trefoyl Sets.

FROM common Experience we learn, that all Seeds, before they are sown for general Crops, ought to be well dress'd and cleans'd from their Husks, and other Incumbrances; for if we happen to meet with such Seeds as are not perfectly freed from these Incumbrances; the sowing of them cannot be so regular, neither will they come up, or spring so equally in the Field.

It is a just Observation made by skilful Farmers, that *Trefoyl*, or *Nonsuch* Seeds will prosper well, if they are sown upon worn-out Corn Lands, and not only bring a valuable Crop, but amend the Land; and on such Grounds as will not bear Grass of any worth, the same Seed will produce a surprising Burthen; but if it might be thought proper to sow it upon such Ground as is naturally good for Corn, the Farmer will certainly receive a plentiful Return.

The Clay, Chalk, and all stiff Soils are greatly profited by it, if they are well exposed; and it is no less Benefit to rocky Ground. It will greatly improve springy or over-wet Grounds, if we first drain them from the Waters, by such Means as are commonly used.

Being sown upon such hilly Grounds as are used to Moss, will infallibly meliorate the Soil, and destroy the Moss, if proper Care be taken to drain such Lands, and the Land made fine by dressing, before we sow the Seeds.

The Virtues of the *Trefoyl* or *Nonsuch*, are that; first, it yields an excellent Pasture for Cows, by encreasing their Quantity of Milk, and giving the Butter and Cheese made with it, the desired yellow Colour, which is a certain Sign of Perfection. Secondly, Whatever kind of Cattle feed on this
Trefoyl

Trefoyl, will grow fat much sooner, than upon the best common Grass; but especially it is esteemed useful in fatning of Lambs, and feeding of Ews: 'Tis also an excellent breeding Pasture for Sheep, bringing the Ews sooner to blossom than the common Pastures; and particularly it is judged a good Seed to preserve Cattle from Distempers, which some other kinds of Pastures are subject to infect them with.

The Hay made of *Trefoyl*, hath a very nourishing Quality in it, if it is cut whilst it is in bloom, it is soon made, and need not be dried so much as common Hay, or Clover-grass: Oxen are generally benefited by it, and grow fat by such Fodder in a short time.

Most Farmers skill'd in the Culture of their Seed, agree that it should not come to Seed before it is mow'd, because the Root is weakned by it; and it is very certain, that the Hay is not so good as when we cut it in the Flower. The Hay is remarkable for drying of a fine Colour; and it is observable, that by cutting this *Trefoyl*, as above directed, it will last much longer than if we were to let it run to Seed before we cut it.

This Seed may be sowed at the same time of Oats or Barley, and among either of the aforesaid Grain, sowing it immediately after the Corn, and harrowing it with a fine Harrow once, and then rolling it.

When the Seasons are favourable for sowing either Barley or Oats, it is then a proper time to sow this Seed; and the finer the Ground is wrought, the better will this Grass come up, and then twelve Pounds of Seed is sufficient for an Acre.

This Seed particularly ought to be well cleaned before it is sown, lest Seeds of Weeds, or coarse Grass, happen to be among it, which may stint
its

its Nourishment, and abridge it of its Duration; but it may however be sown with red Grass, and will last a long time.

Trefoyl is also of good Advantage to Lands, which are over-run with Twitch or Couch-grass; if it is sown with Barley; for as it grows quickly, it will so much over shadow the Couch-Grass, that in a little time it will smother it. It is also to be noted, that while this Grass is on the Ground, it does not draw any Nourishment from the Earth, which is proper for Corn; but being ploughed in when we have a mind to sow Corn upon the same Ground, it makes a very good Manure, and prepares the Ground very properly for Corn.

*Remarks on the Nature and Improvement of
Trefoyl.*

IN the first Part of this Account of *Trefoyl*, the Author says, that all Seeds should be well cleaned from their Husks before they are sown, without making any Exception. This I can easily prove to be a gross Error; for it is so well known, that this Seed is best sown in its Husk or Hull; that it's a general Practice throughout *Hertfordshire*, to sow it in its black Shell or Cover; because by this means it will admit of harrowing in, and thereby be better mix'd with the Earth, and more secured from Frosts and the burstings of hasty Showers, that the naked Seed is liable to, and sometimes becomes spoiled when sowed on the top, and only rolled in; and if it is harrowed in, the Tynes are apt to bury great Part of this small Seed: for I have sown it both ways; therefore when we sow our Barley or Oats, we sow one Bushel of this Seed, that generally costs twenty or thirty Shillings, over an Acre of Land, immediately after the Corn is sowed and harrowed in;

in; and then give this Grass-Seed one harrowing, and it's done with; for we never rolle it, till the Clover is sown by rolling in, a Fortnight after, on the same Ground: These grow together extreamly well, because the *Trefoyl* is a sort of Antidote to the Clover, and in a great measure prevents its fatal Quality of hoving Cows and Sheep; and also for their agreeable Benefits to each other in making of Hay, and feeding Cattle; the *Trefoyl* being a branching, fibrous sort of Grass, entangles it self with the Clover, and prevents very much the loss of its valuable Leaves; which when made alone, it generally loses great Part of, both in Field and Rack; besides, it helps to shade the Roots of the Clover, and becomes together, a more fatning, substantial Food, than when sowed alone; and the more, for that the *Trefoyl*, after the first Head is cut or mowed off, will not rally again, as our Country-men call it, like Clover; but the Rye-grass, affords but a poor Bite after that time; when the Clover makes a quick Shoot, and will get a large second Head.

It will grow in any Ground, and like the *St. Foy*, is one of their best Friends in Chalks, dry Gravels and Sands, where Clover will not thrive.

He says, this will not hinder the Growth of Corn, which I think is more than he can prove; for if he ever saw the Root of *Trefoyl*, he would find it to be a fibrous Bunch, that spreads it self in the compass of a Crown Piece, about two Inches in Length, close to the Surface, where it draws its Nourishment from the Top, and best Earth; and therefore is by some called an Impoverisher, and somewhat a Sowrer of the Ground, as the Rye-grass, and all the Shallow, stringy Sorts are: This I am sensible is a new Character of it, but I wish there is not too much Truth in it; for I have observed some of our Farmers, that

that have sowed it among their Oats, on a stiffish, loamy, moist Soil, for feeding their Horses or Sheep, till about *Midsummer*, when they have ploughed it twice before they sowed it with Wheat; and as it appeared to me, the Grain complained, by the thinness of the Crop.

I must own, my Opinion is, that it is not capable of doing much harm the first Summer, amongst the Corn it is sown with; because the Roots are small and young, and that little it does, it makes amends for, by shading the Roots of the Corn in a dry time.

But I have known it ruin a Crop of Wheat that was well dressed, and flourish'd greatly for a little while in the Spring, till the *Trefoyl* got the Master and choak'd it: The Occasion was this; a Piece of *Trefoyl* was mowed for Seed, which as it sheds the soonest and easiest of any other, there was so much remain'd on the Ground, that seeded it all over the next Year amongst the Wheat: Now the oftner the Land is ploughed, the greater Power it gives the Seed to do this Mischief; therefore such Ground should have only one Ploughing, and the Wheat harrowed in; this effectually buries it, and totally hinders it ever coming again.

As to its being ploughed in for Manure, I am not an Advocate for the Benefits it produces this way (unless there's no other sort can be had) because its Stalks and Roots are not of that Substance as Clover is, that I think far more proper for this purpose; yet it is call'd, only a half-dressing, and *French* Wheat a whole one.

If the *Trefoyl* is sown alone with the Barley or Oats for an entire Crop, then we sow two Bushels of it on an Acre, in the manner before directed: And if Clover is sown with *Trefoyl*, then six or eight Pound is the general Quantity on a fine Tilth.

CLOVER, and its Improvement.

CLOVER, is esteemed by the Farmers a very rich and profitable Grass; the Hay made of it, is given to Cows in the Winter; being mix'd with Barley-straw, is an excellent Fodder for them; or if it is sown upon Wheat Lands in *March*, before the Wheat begins to spire, it makes a good Winter Pasture for Cattle.

There is little Trouble in sowing it, for it is only to be rolled; and therefore it should be done when the Ground is dry, and Rain expected; about five or six Pound of the Seed is enough for each Acre, if we design it for this Use; but if we sow it by it self, then sow twice as much upon each Acre.

If we sow it with Barley, it brings an extraordinary Winter Crop; or with Oats, it will do very well.

If we sow it with Corn in over-strong Grounds, it corrects the Over-luxuriance of the Corn; or in other Words, it keeps the Straw from growing too rank, and consequently fills the Ear; and then considering that in ten or twelve Days after the Corn is cut, the same Land without further Trouble will be in a good State of Pasturage, it will be easy to conceive what Profit may be made by it.

All worn out Lands are greatly improved by it, for it being of a different Nature from Corn, it meets in such Land a proper Nourishment which the Corn did not draw from it, and therefore brings a profitable Crop.

We have of this Seed from *Holland*, as well as of *English* Growth; but the *English* is much preferable to the *Dutch*, and may more certainly be depended upon.

If

If you sow your Clover alone, then cover it only by passing a Bush-harrow once over the Ground; but it must be observed, that the Ground be made very fine before you sow the Seed; and if the Season is favourable for bringing it up, you may mow it in about three Months after sowing; this lasts a long time in the Ground, if we think proper to let it remain; but as it prepares Ground for Corn, and makes Pastures of our Stubbles, it is often shifted from one Land to another, as the skillful Farmer sees Occasion.

It is to be noted, that the Clover is a very feeding and fatning Grass for Cattle; and when we first bring them to feed upon it in the Field, we must not suffer them to graze too freely upon it, but give it them with caution and by degrees, till after a Week they may be left to themselves; for which reason, it is left to tedder the Horses to what Lengths may be thought convenient, at the first putting them into such Pasture.

N. B. *Clover is excellent for Soiling of Horses in the Spring.*

Remarks on the Nature and Improvement of CLOVER.

THE foregoing Account of Clover, gives me an Opportunity of disallowing this Author's recommending *March* to sow the Clover Seed in, because that Month being often attended with cutting, sharp Winds and Frosts; the common way is to sow it the beginning of *April*, for its greater Security; because about this time the Wheat has sufficient Head to shelter it; and the Wets being more warm, frequently fall in this Month, and force on a quicker Growth of all Vegetables than the former.

Next this Author says, that five or six Pound of this Seed is enough to sow among Grain; It's true, that good Crops have followed this Quantity, where it has met with a right Ground, Management and Season; but that Happiness is not always to be trusted to; and therefore we generally sow ten or twelve Pounds on an Acre for fear of the worst, that often happens from the Slug, Fly, Frost, Wets and Winds: Now here is wanting that necessary Caution that should have been tac'd to it, that the Clover must not be sowed at the same time the Grain is, but only rolled in, about a Fortnight or three Weeks after; for if it is, and a showery Summer succeed, it is two to one odds, in my Opinion, if the Crop is not a great Part spoiled by the Clover's Luxuriancy, as I have known it several times happen.

Again, he says, That Horses should be staked to a certain Length, to prevent the Mischief that might otherwise accrue, from the rank feeding of the Clover. This is a monstrous Mistake indeed, for no Man, I believe, ever knew a Horse suffer this way; it's true, we sometimes bleed them two or three Days after they are turn'd in, to prevent a Plethory, and so we do sometimes, if in natural Grass: But if ever he had been an Owner of Cows or Sheep, fed in Clover, he would have fix'd some such Caution on their behalf; because it is too often known, that Numbers of them have died; not only at their first being turn'd in, but after some Days, and even Weeks have past; though it is certain, the greatest Danger is at first; by their voracious, greedy Feeding, and the Wind contained in this firm, rank Grass, that in half an Hour has hov'd their Bodies like a Bladder; and if not directly run about or stabb'd in the Flank, according to the Method prescrib'd in my first Book, Page 144, they surely die. And here I have large-

ly

ly wrote of this Grass, and shewed the greatest Security that I know of, and what I have several times practised with Success, to prevent this common Misfortune; for as I said before, in the first Place it is owing to an empty Belly, that in two or three Hours is easily filled, just before they are turned into the Clover, with Hay and natural Grass; and when once they are in, due Care must be taken not to keep them out an Hour together, least this Interim should cause such an Evacuation, as may bring on this Disaster.

The Roots of Clover are of the St. *Fayn* and *Lucern* Tribe, that extract their Juices from some depth in the Earth, by running down near a Foot in Length with very few and fine Side-shoots; and therefore does not hurt and sour the Earth like Rye-grass and Trefoyl, which renders it a great Sweetner of the Earth, a Killer of Weeds, and a very good Dresser and Assistant; especially if ploughed in when high in Stalk, and not only so by them, but also by their many large Roots, which when turn'd up, and broke by the Plough and Harrows, rot and diffuse their Salts into the minute Cavities of the hollowed Earth.

Clover, by some is disputed, whether it does most Service to the Ground, by being eat all the Summer, or mowed twice, once for Hay, and the next time for Seed. In my Opinion, it advantageth the Earth most, when the first Crop is mowed, and all the rest eat; for by letting it stand till it is fit to mow, it kills the Weed by the Cover of its thick, high Head, hollows the Ground, shades its own Roots, and thereby prepares the Ground for the better Growth of the After-grass. But if fed first, then the Roots are expos'd to the Summer Droughts for want of that Cover, and consequently give the Weed the greater Opportunity of damaging the Clover.

ST. FOYN, and the Improvement of Land by it.

ST. FOYN, or Cocks-head Grass, is an extraordinary Improver of dry, gravelly, and Sandy-soils, even though they have been over-run with Heath or Ling, or with Fern or Brakes, for this takes deep Root in the Ground, and all open, light, and free Soils are therefore good for it: The first considerable Improvement that was made by it in *England*, was in and about *Northamptonshire*, on the most gravelly, sandy Grounds, where it brought such valuable Crops, as encouraged many Farmers to follow the same Practice, in cultivating it on all their light Soils, and it is now in great esteem by all that know it; in *Kent* it is in great Perfection, upon chalky Gravel, and it is of an extraordinary duration in all Places where it is sown; even in some Parts where it has stood twenty Years, it yet brings as valuable Crops as at the first.

The most barren Land will produce this without much manuring, and that should be only by Marl or Chalk, if it is allowed any Manure at all; but the most expert and knowing Farmers, rather chuse to sow it on such light, dry Lands, without any Manure, as may be ploughed in, and the Ground be fit to receive Corn; and when the same Ground, for Dung, it is by no means good for it, if it could be spared, we are sure however, that when it has stood many Years, it is worn by the long Culture of Corn upon it, we may again sow it with *St. Foyn*, which will not fail to produce a valuable Crop.

Many Lands which have been esteemed incapable of producing any thing of worth, and have not brought the Owner a Shilling an Acre *per Ann*, have by sowing them in the manner before mentioned,

on'd, been improv'd to thirty and forty Shillings an Acre, and some three Pounds; for the Root being large, and shooting deep in the Ground, it is the more capable of supporting it self in the driest Season; and therefore serves as Pasture for Cattle, when there is little Grass to be had elsewhere.

It is in many Places sown with Corn, as are the two former, and turns to great Profit; and if the Corn happens to miss, we are sure of a Crop of this. It is not proper to let it be fed the first Year, because the Roots will not then be strong enough to bear Cropping by the Cattle, who will on account of its sweetness, eat it close to the Ground, and draw it too violently; but if it is sown amongst Corn, it may be mowed with the Corn without receiving any Damage.

In the sowing of this Seed, as well as the other foreign Grasses, it must be observed that the Ground be made very fine; and if it is sown with Corn, the Quantity of Corn must be somewhat less than usual; *March* and *April* are proper Months to put this Seed in the Ground; and when we do sow it, spare not for Seed, for as the Seed is large, so an Acre will take the larger Quantity, four Bushels at least must be sown upon an Acre.

Remarks on the Nature and Improvement of St. Foyn.

THIS certainly is improved by sowing its Seed in dry, light Lands; but if he had said, it's mostly propagated in Chalks, I should think, he would have deserved more Credit; for in my Travels, I have seen it more on the former, than ever I did in the latter; and if the Gravels are much loamed, it oftentimes misses, as I have reason

reason to complain of; for this Seed will not grow in Clays, Loams, rich, nor wet Earth; by reason (if it does take) its spungy, deep Roots will fugg, rot, and die here in a few Years; for that it requires a dry Soil, both at Top, Sides, and Bottom of its Roots.

Then he says, this does not want much Manuring, if any at all, and that should be only Marl or Chalk. Now here he has acted the Theory Writer with a witness; for I'll appeal to all Practitioners in this Grass, if it does not want manuring, even necessarily every sixth Year at least, which is as often as we dress our Wheat Land; otherwise, I am sure the twitch Grass will get up, and the *St. Foyn* decrease in its Crops; therefore we generally at that time, sow twenty or twenty-five Bushels of *London* Soot over an Acre of it at *Candlemas*, as thin as we well can out of a Seed Cot. This is such natural Manure for it, that in all *St. Foyn* Grounds about us (and they are many) they make use of no other sort, and yet we live in the chalky Country; therefore whoever makes use of Chalk for a Dressing, I think, is under the last Shift: Besides, I have known an Attempt made to improve natural Grass with Chalk, but the Project soon dropt, because they spread like a Pan-cake, become a sort of Plaister, and bound in the Grass, and indeed at best our common Chalk is but a poor, hungry Body; yet is useful in Clays, Gravels, and Loams, when it is ploughed in, and incorporated with them, as I have amply made appear in the Chapter of Chalks.

As to Marls, I never saw their Effects this way, but it's obvious to many, that this is a most unctious, fertilizing Earth, and consequently may administer an Improvement to the lean Ground, wherein the *St. Foyn* grows, if it can be conveniently

ently had; and undoubtedly there are many Places in *England*, where this can be got, and not the Soot: By the same Rule, for Necessity's sake, Parings of Turf, or Shovelings of High-ways may be mix'd with Lime and Chalk, and let to lye two or three Years, till they are rotted and brought into a powder'd Condition, which may do some good on *St. Foyn*, as well as Wood, or Coal-ashes.

But as I have shewn what will preserve and further the profitable Growth of *St. Foyn*, I will now give an Example of two Crops I knew ruin'd by dint of Ignorance, and one and the same sort of Mismanagement. One Crop grew about two Miles off me, the other within half a Mile; and sown by Men of Years, under great Repute for their Knowledge and Practice in Farming after the downright common Way: These two Men I was acquainted with, who seem'd so opinionated in the Matter (as commonly the old staunch ones are) that I believe they had no Mistrust of a Mis-carriage; but sure enough it happened; for the *St. Foyn* took extraordinary well on a chalky, loamy Ground; and in order to enjoy the more this good Beginning, they footed it the very second Year, which so enrag'd the Growth of Twitch-grass and other Weeds, that they got the start of the *St. Foyn* and kill'd it; because it was then in its meer Infancy, and had not time allowed it, to make a sufficient strong Root in the Ground, whereby it would have been enabled to have got the Dominion of all the Weeds, and kill'd them as they did this: Wherefore this great Loss of both these fine Crops, ought to stand recorded as a Warning to others, to avoid the like Misfortune; and never to foot their *St. Foyn* till the third or fourth Year.

In the first and second Year it comes up singly, and not spreading, and is thereby so soon destroyed by the Couching Twitch-grass; but in the third and fourth Year, it spreads rather beyond Poppy, and produces (as has been observed) sixteen Branches from one Stalk, that is so strong, and covers the Ground so much, as kills the Twitch, which is the Reason, that the Soot must not be put on till the St. Foyn has obtained this Strength.

LA LUCERNE, *and the Improvement of Land by it.*

THE Plant commonly called La Lucerne, is a Medic Clover, or by some called Snail Trefoyl, or *Burgundy Fodder*; it is a most valuable Grass for its excellent quick Growth and Duration, and has raised some of the greatest Improvements in *England*: As it is of a succulent or juicy Nature, it makes Cows abound in Milk more than any other Fodder, whether they eat it green or dry: Oxen are very speedily fatned by it; and Horses are no less advantaged by feeding on it. Its Crop, for the most part, is double the Quantity of the St. Foyn, and may, if it likes the Ground, be mowed three times in a Summer; but let it grow where it will, it may bear two Cuttings; the one in *May*, and the other in *August*, and carry a strong Pasture for the Winter.

The Soil the most proper for it, is light Ground, such as Sand, or Gravel, or Hazel Mould; or if the Ground be very stiff, then burn the Surface, which is called *Devonshiring*, or *Densbiring*, and by that means the Soil will become fit for it; but it has been tried in stiff Soils and moist Lands, and has succeeded well.

Cattle

Cattle which have not been used to it, must be brought to it by gentle degrees; as we have observed before, in the Article of the great Clover.

It is good for soiling of Horses in the Spring, and is of a warm Nature; we may sow this Seed in *March* or *April*, after the Ground is made very fine, either alone or with Corn, harrowing it with a Bush; ten Pounds will sow an Acre; an Acre is enough to keep three Horses a whole Year.

Remarks on the Nature, and Improvement of LucERN.

I Must confess he has hit this the best of any of the Grasses. I have it now growing in four Fields on two sorts of Soil; one is a high, loamy, and moist Ground, with a red Clay about two Foot under it, and here it prospers very well; the other being of a dry, loamy Gravel, was sowed after a Crop of Clover, thus: About *Allbottle-lantide*, I ploughed it with the Wheel-plough, by turning it into broad Lands; after that, I ploughed it three times more, besides several Harrowings, when I had got it into a good Tilth. On the fifteenth Day of *May*, I liquor'd some white Oats, and sowed three Bushels on an Acre, and harrowed them in; after this, on the Day following, I sowed ten Pound of Lucerne Seed on each Acre, by throwing it from between two Fingers and Thumb, in Broad-cast Manner, and roled it in immediately: The Oats proved a high, standing Crop, not too thick, which gave the grass Seed-room to grow, and become planted to my desire.

But in none of his Lecture, is there any Notice taken of its proper Dressing, nor its Shape or Make of Head or Root, nor how to save its Seed; and therefore I shall here be the more particular

on the last, as leaving the first to its proper Place amongst Dressings.

This Grass, as I was lately inform'd by an ingenious Gentleman, who lived thirteen Years at *Aleppo*, was first known to the *English* at that Place, where they soil their Horses, first with mowed green Barley, commonly for a Month together, and another Month with this Lucerne; the one to scour them, the other to stop and fat them; These alternate Feedings, he says, they find the most agreeable of all others, to keep their Horses in a due Regimen of Health and Prosperity; and that in the more warm Clime of *Arabia felix*, they get vast Burthens once a Month. From *Aleppo*, it was brought into several Parts of the *Mediterranean*, and particularly to *Minorca*, it grows in such Perfection, that it is now their chiefeſt Subſiſtence for their Cattle; from thence it got more forward into *Europe*, and is now planted in abundance of Places, and more like to be, for its many extraordinary beneficial Qualities.

I cannot find by what Authority ſeveral late Writers call this Grass by the Names of Medic Clover, Snail Trefoyl, or *Burgundy* Fodder; otherwise than that they have a mind to give it nominal Flourishes, without any Warrant from former Authors; who, I believe, were better acquainted with their Names, than they were: For if two learned *French* Writers, that compiled their History above one hundred Years ſince, may be credited in their Definitions of *St. Foy*, thoſe three very Names belong ſolely to that Grass and no other, as may appear in *Page 689* of that Book, from whence I find that triple Title is ſtrained.

This is a Grass that runs into many Joynts and Branches, inſomuch, that it is compar'd to that ſpreading Vegetable the Poppy, that runs into a high,

high, wide Growth; by which Mode the Lucerne is certainly a prodigious Weed-killer, and does not spoil and draw the Ground into Poverty, as Rye-grass and Trefoyl will; because it extracts its Nutriment after the same Method as the St. Foyn, by turning its Root, Carrot-like, very deep into the Earth, even to the length almost of an Arm; here it lies moist, and flourishes under a great Head in the driest Summer, and thereby returns a most fine, large, succulent, sweet Grass, to the great Refreshment of Cattle, while the more shallow sorts are scorch'd and dry'd up.

To save the Seed, is what I have next to shew, as it was communicated to me by a curious Gentleman, who has sown it in *Wiltshire* these many Years, and says, this Grass in a dry Summer, will suffer its Seed to be saved; but in a wet one, there is a great deal of Difficulty attends it, insomuch, that it has brought the Owners under a necessity of inventing a Method to obtain it; and at last one has been discovered, that effectually with due Care will answer the Purpose, and that is, at every two Foot distance, a common Stake must be drove into the Ground, in Rows (if it will admit of it) at two Foot asunder each Stake, and the Master Seedling Stalk fastened thereto, as it shoots forward; this will bring its Head (which is in shape of a Bottle-screw) to a strait Erection into the Air, where it will be the better exposed to the ripening Sun; but this is not all, for at the bottom is the main Work to be performed, by putting away its lower Shoots; which if permitted to grow in these wet Seasons, will so check the Master-seedling Shoot, as to render it incapable of bringing Seed to Perfection.

*RYE GRASS, and the Improvement of Land
by it.*

THE Rye Grass, or everlasting Grass, is of extraordinary Benefit to stiff, lower Grounds that lie wet; this is so natural to these Lands, that in the strongest Clays without any Manure, it will prosper, and bring as valuable a Crop as any Meadow; in wet Gravels, or cold, springy Grounds it does well; but especially if it is sowed with Cow Grass, or white Clover Seeds, as the best Farmers generally do in *Devonshire*.

When it is mowed, it brings a rich Crop, and may generally be cut twice a Year, leaving besides a good Pasture for Winter: It is of good Service to Cattle, especially for fatning of Oxen, or Wether Sheep, and particularly is remarkable for its keeping Cattle from Surfeits.

It must be sown either in *March*, or *April*, or in *September*, and will endure a long time in good Heart.

*Remarks on the Nature and Improvement of RYE
GRASS.*

RYE Grass, as well as some others, has its good and bad Properties. Its good ones are, that it comes the soonest of any Grass in the Spring; and thereby gives the Farmer an Opportunity to improve his Milch and other Beasts, before other Grasses are ready; so that by the time this is done, the Clover and Trefoyl will be fit to turn into, which indeed is a very useful Article, and, I think, is the best belonging to it, which this Author must needs be sensible of, if ever he kept Cows, and sow'd this Grass.

It

It is also of great Service for its hardy Nature, in growing on rough Tilths, and in poor, gravelly Grounds, that will bear little else, and because it will last many Years.

Its ill Properties are after the first Crop is mow'd off, it grows but little the rest of the Year, which brings this, and the Trefoyl under great Disesteem.

That if it is sowed with Clover, as it is often done to preserve the Sheep and Cows from hoving, and for its early Bite; this will in three Years time get the better of the Clover, and so almost become an entire Crop of it self; but then it generally grows too thin for Profit; Also at best it is but a very coarse Grass, which made a Person say, it is next to a Kex for that Quality.

This is a Grass that sours the Ground above all others, by the thready Entanglements of its Root with the upper Earth, which it greatly impoverishes by its shallow Growth.

For which reason it is utterly a wrong Grass to lay down Ground with, and converting it into Meadow Land, because of its voracious Nature, and mixing it self for many Years with the natural Grass, that it much spoils by hindring its Sale.

It's sown on a fine Tilth in *March* or *April*; if with Clover, one Bushel harrowed in is enough on an Acre; but if it is to stand for an entire Crop, then two Bushels is the least than can be sown.

Cow

COW GRASS, and the Improvement of Land
by it.

THE Cow Grass, is called Cow Clover, or White Clover, delights in moist Ground and swampy Places; so that where none of the former Grasses will thrive, this may be sown with good Success, but especially with Rye Grass, as mentioned above; as it is a Clover, it is a quick Grower, and Destroyer of Weeds, and is of excellent Benefit to Cows or Oxen, who choose it before any other Grass; it has the singular Quality before other Clovers, of preserving Cattle in a sound State of Health, either given in dry Fodder, or to be fed in Pasturage.

Some Lands which have been so annoyed with Waters, that they have not produced any thing of value; have been so improved by sowing this Grass upon them, that the Benefit has been four Hundred *per Cent*.

The time of sowing it is in *March* and *April*, after the manner of the Trefoil Black Grass, and about twelve Pound of clean Seed is enough for an Acre.

Remarks on the Nature and Improvement of Cow
GRASS.

THIS new Grass has but lately been introduced into the World under the fictitious Name of Cow Grass; and what Reputation it may have met with in other Parts of the World, I know not; but this I know, that amongst our best Husbandmen in *Hertfordshire*, it is rejected, as absolute Honey-suckle Seed, which if true, they have certainly a great deal of Reason of their Side; because all Honey-suckle vehemently sour the Ground;

Ground; and by its great Quantities of fibrous, stringy Roots, that sometimes stand the Strength of six Horses, when they have got hold, and a great Predominancy in the Earth, which in too many Grounds is plain to be seen; insomuch, that whole Fields are over-run with it, occasion'd chiefly by the two Horse Teams, who have not Strength to draw the Plough through a sufficient Depth of Earth, to undermine and tear up their Roots, from whence often ensues Destruction to the following Crops; especially the *Lent* ones, that are frequently very much choaked by the Honey-suckles luxuriant Growth, in wet Summers particularly.

Now what has brought this Cow Grass under the real Suspicion of its being a true Honey-suckle, is, its being like it in Leaf, Root, and Quality; for the first like the last, will grow in swampy Grounds, and return vast Crops, rather beyond the Clover; but then the After-effects are so feared, that, as I said before, it is in disuse with us.

Further Annotations and Remarks on CLOVER.

CLOVER on Wheat. — By the greatest Farmer with us, Clover is seldom sown amongst his Barley, because of its rank Growth in a wet Summer, even to the endangering the miscarriage and crippling of the Crop; for that the Barley is less able to withstand its Luxuriancy, than either the Wheat or Oat, and that for these Reasons — The Stalk of Barley is generally shorter, than either of the other two, as being not so long joyned as the Wheat or Oat, which is visible in particular at the upper Knot of these Stalks; for upon Examination, the highest Joynt of the Wheat or Oat, is commonly found to be as long again as that of the Barley; and therefore

G g

they

they are more out of the Clover's Power, by so much as they are higher, and have a greater Potency to shade, cover, and retard its Growth; this generally induces him to sow his Clover in *February*, on this Wheat Stitch, which being well dressed and in a fine Tilth, often takes extraordinary well; this he feeds one Year entirely, and the first Part of the next Summer, till he mows or feeds off the first Head, when he ploughs it up two or three times, and gets either a Crop of Turneps, or Wheat again; or eats it all the second Summer, ploughs it up in Winter, and sows it with Barley the next Spring. But of late, he only lets it stand one Summer, as thinking the Ground becomes sour by feeding it two. Some sow the Clover on Wheat in *April*.

Another, I knew, that sowed his Wheat Stitches with Clover in the Spring, and for a Trial, got a large Bundle of Bushtied fast together, and by the End of the Rope drew it up and down the Stitches of half the Field; this received the Seed very well, but the other half, that he did nothing to after he sowed, had no Effect.

Clover with Oats. This Seed he harrows in with his Oats, without any Pole a-cross them, as being more sure than roling it; because the Fly, Frost, Slug, Wet, Winds, or Sun, have not the Power to hurt it; when it's envelop'd in the Earth, as when it's confin'd only to the bare Surface, and nakedly expos'd to the several Devastations; besides, as there is only one Ploughing to the Culture of this Grain, the sour, surly Quality of the Ground has less Power to hurt the Seed when it is harrowed in with the Oats, than when it is only sowed and roled in.

Clover with Barley. If a Crop of Clover is intended to be got with Barley, then it must be sown a Fortnight, three Weeks, or a Month after the Grain,

Grain, and only roled in, as I have before hinted, which generally prevents this Damage : But here I publish the several Methods, that the Reader may make his better Choice.

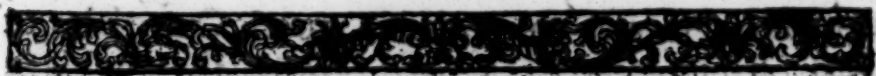
Clover with Peas. If a Crop of Clover is designed to be had after Peas are got off, then when the Peas are harrowed, Clover Seed should be also harrowed at the same time; but here he runs a Risque, for if the Peas are a great Crop, it's a Wonder if the Clover is not kill'd by their Cover; but if some of it takes, it may be thickened by sowing a few Pounds on an Acre, just before the Peas are hooked or mowed, which by the tread of the Workmen, will be forced into the hollow Earth, and very likely become a good Crop.

Clover with Rye. So also may Clover be harrowed or Roled in with Rye, either in *August* or the Spring, and become a good Crop, without damaging this Grain, whose Stalks growing very high, are the less subject to the Clover's Fury.

Of natural GRASSES,

THE Honey-suckle, both red and white, I write on as two of the capital Sorts of our Upland Meadow; the red is a branching, sweet, substantial Grass, that returns good Quantities of Hay, by its large Stalk and Head, that holds a great deal of rich Seed, much like the Clover Head; this is ripe before the White Honey-suckle, and are both such good Food for Cattle, that they sometimes cause the Horse to froth at Mouth, when it is cut in its full Sap. The Penny, or Rattle Grass has a Leaf like Wood-bine full of Notches, blows with a yellow Flower, and when that goes off, and its brown Head rattles if shaken, then it's time to mow it; this in particular is so nicely observed by the *Middlesex* Hay Farmers,

that they most carefully mow it before it sheds its Seed, because their substantial, heavy Bodies, contribute very much to the Weight of the Hay: There is another sort of Grass that blows with a yellow Flower, and much resembles those of a Furze, is three-leaved like Trefoyl, carries three Blossoms together on its top, by some called the Ladies Finger, and is reckoned the best for Cattle. The Plantane Grass, is a large, high stalked, sweet Grass, very common with us; its Goodness, I hear, has tempted some to get whole Fields of its best sort in *Wiltshire*: There are many other Grasses that grow in my Meadows, that would be too tedious for Relation here, though they justly deserve a Detail of their Make and Natures; and especially those Sorts that grow in the rich Meadows in the Vale of *Ailesbury*, that lie not far from me; which are of that extraordinary feeding Power, that their Hay alone will fat an Ox or Horse, when ours will not; which makes this Hay feed the best of all others to sow at first on Ground that is to be converted into a lasting Sward; and which I can furnish any Person with, that is desirous of so great a Good.



CHAP. XXXVII.

WEEDS, *their Mischiefs and Remedies.*

WEEDS, as they are part of the Curse entail'd on Man's Posterity, for his Disobedience to his Creator, do visibly shew themselves, and act in Opposition to Man's Interest in most Places,

Places, where Care and Diligence do not supplant their several Mischiefs. To which End, I shall describe the Make, Nature, and Remedy of some of the common sorts that usually infest our Fields, that cost some Farmers many Pounds a Year to check and prevent the spoiling of their Crops. And first, the

Crow Garlick, sometimes runs up as high as the Wheat, with Heads and Seeds somewhat like Onions, but not so large; it chiefly grows amongst Wheat and Barley, and not so much amongst Oats and Peas, at least it is not so much minded in them as the two former. It is such an abominable stinking Weed, that when the Wheat is at Market, and this Seed perceived to be mix'd but in a small degree with it, the Buyer commonly calls it the Devil of a Seed, as he also does the disagreeable Scent of the Melilot. One of my Daysmen told me, that he and another, as they were weeding of Corn, spied some of the Cow Garlick, which so much resembled young Onions, that his Partner said, he would sit down and eat his Bread and Cheese with a few of them; accordingly, he cut about ten close to the Ground, but it was not long before hey began to swell the Man, and forc'd him home as fast as he could well go; where happily his Wife gave him a Dose of Physick that she had by her, and saved her Husband. This Weed grows in many Grounds, but chiefly in the stony, clay Soils; and is best kill'd by Winter Fallowings, and frequent Ploughings.

Melilot, is a Weed that affects both Vale and Chiltern, by growing amongst Wheat and Barley, but mostly in Peas, Oats, and Beans, where it comes up much like Lucerne Grass, about two Foot high, and as much in Breadth, with a yellow Flower, and a black Seed like Trefoyl: If its Leaf or Seed is rubbed, it will stink the hands for
four

four or five Hours; and is so hateful to Horses, that they refuse the Oats it grows among: It is mostly found in stony Clays, and wettish Grounds, which, if cross-cropt, by too often Sowings, will produce this horrid Weed, as well in the Barley and Wheat, as in the other sorts of Grain. Its Remedy is the same as that for the Crow Garlick.

Wild Oat. This Weed is notoriously known to be the most pernicious of all others, by reason of the great Difficulty that attends its Extirpation; for where this has got Footing, it seldom is totally vanquish'd; because where it grows amongst Grain, its Seeds are ripe, and scatter themselves before the Corn is fit to cut, whereby it propagates it self, and encreases in the Ground, to the great Damage of future Crops; for they are of so hardy a Nature, as not to be so soon killed as other Weeds, which has begot an Opinion in some, that if Ground over-run with them is laid down for seven Years together, yet will they not die in that time, but will shew themselves again on its being ploughed up and sown anew with Grain; but this I do not altogether credit; however, it is allowed by the most judicious, that new Ground produces them most, by reason it is seldom sown thick enough with Corn to tame its Luxuriancy; and where Grain comes up too thin, the wild Oat often fills up the Vacancy, which shews the Benefit of allowing the Ground Seed enough; for some say, and I think with a great deal of Judgment, that the best Cure is to sow the Land thick, and then the Corn will choak the wild Oats. It is observed, that some Ground is so subject to them, that where the *Lent* Grain misses, they will be sure to have this Weed for a Supply; which makes some say, it is the Nature of the Ground that breeds them: They mostly grow in the Vale, and in the Light Loams of the Chiltern;

tern; in the latter of which, it was my Misfortune to have too many of them this last Year come up in a small ploughed Field, that had been a Meadow about ten Years ago; here my Wheat proved too thin, and up came the Wild Oat, and spoiled most of my Crop, which will oblige me to sow it with Oats, Clover, and Hay-seeds this Spring, in order to have it a Meadow again, and overcome the dismal Weed; which is also often bred by Grounds being too long, and too often sown with Corn. Their Remedy is Winter Fallows, and frequent Ploughings of the Earth, with sometimes chalking it well; but these will only check it, and not kill it so soon as full Crops of Grain, and pulling it up by the Roots while green. If it takes in Wheat, the Ground must have a Winter and Summer's Fallow directly succeed, which one of my Neighbours has found the best Cure of all others.

Mustard Seed. This Weed chiefly grows in the wet Grounds of the low Vale, where it runs up about two Foot high, with a yellow Flower much like unto Curlock, chiefly in the watry Thoroughs, between their half Lands; and therefore does but little harm, because it does not grow among the Corn, but is annually gathered as a most valuable Thing by the poor People.

Curlock seldom grows among Wheat, but more amongst Barley, and most of all in the best Grains, where it does most Harm, by branching and choaking the Corn; it has a yellow Flower, runs up to Seed like a Turnep, and grows chiefly in the light Chalks and Gravels, especially on fine Tilths, for it hates a heavy Earth.

Cats-Tail. This Name owns two sorts of this Weed, the Blew and the Green, but the Blew is the worst; this shews itself once in three Years, in Ground that is subject to it; where it commonly grows

grows most in Peas and Oats, in dry, chalky, and gravelly Grounds, with a large Head and down-right Root, sometimes over-running a great deal of Land, to the vast prejudice of the Corn. The Cure is either pulling them up in *June* or *July*, or ploughing with a Fin in Winter, that will cut their Roots in two, and cripple their after-growth. Also by digging with the Mattock.

The green Sort grows in wettish, flat, loamy Land, where it mats, branches, and hangs together like Twitch Grass, and choaks the Corn, but is mostly found amongst the *Lent* Grain. They are always in the Ground that is subject to them; and their Roots like a Honey-suckle, which certainly fours the Earth to a great degree, as all the matted Tribe does. Their Cure is often ploughing with a Fin on the Shar, and their fibrous, stringy Roots carried off the Land.

Camock. The Seed of this capital Weed is seldom or never observed, it sinks as bad as Melilot, branches and Roots more than the Honey-suckle, and is a greater spoiler of the Corn; it mostly grows in white and gravelly Grounds. The Cure is chiefly by the Mattock, to dig them up deep and break the Ground well, carefully carrying away all their stringy Parts off the ploughed Land; this will destroy them, but the Plough won't: They sometimes take such hold of the Ground as to set six Horses.

Hog-weed. This is a general Weed, that runs over most of our ploughed Fields in the Chiltern, especially where the sluggish, indolent Husbandman has the Culture of them; for nothing will kill them but downright Diligence and Labour; they take sometimes two Foot into the Ground, both with their Tap and Side-shoots, and run up with a great Stalk, and large, high, seedy, white, yellow Head, that brings forth a flat Seed like

a Gar-

a Garden Parsnip. I formerly bought a six Acre Field, that was so over-run with them, that I bestowed three several Diggings all over the ploughed Ground in the Summer Fallow Season, and brought up many of their deepest minute Parts, which cost me, I believe five Pounds; yet this proved only a Check and not a Cure; so that I was obliged several Years after, to cut them up in Weeding-time, and have two Men to follow the Plough with Mattocks, to chop off part of them as they appeared in the Thoroughs; which with the Fin on the Shar, will in time overcome them; but the Cuttings of the Hogs-weed must be carried off the ploughed Lands, lest any take Root by being left thereon.

May-weed. This is a stinking, venomous Weed, with a white Flower, well known to most of our Chiltern-Reapers, who sometimes have their Hands and Legs so blister'd with it, that they are not capable of working till they get it cured by House-leek and Cream. It mostly grows upon wet, loamy Lands, and Gravels, and is chiefly produced by four Tilths, and wet Seasons, which makes a dry Ploughing-time, and a sweet Tilth the only Cure.

Poppy. This is another Weed that robs the Ground of that Nourishment that is due to the Corn; and chiefly grows in white and gravelly Grounds, occasioned by a fine Tilth, and a dry ploughing Season, which makes a wet, heavy one its best Cure.

Honey-suckle. This is a most powerful Weed, that by its stringy Roots will, next the Camock, set a strong Team of Horses; but this Character is only confined to old Roots, for the young ones are not of this tuff Nature, yet will certainly arrive to this degree of Mischief, if not kill'd in time; and of this great Misfortune have most of

the two Horse Farmers reason to complain, because their Strength is not capable of eradicating their tenacious Fibres, which is certainly best done by deep ploughings; and therefore several Fields about me are so over-run with this Weed, that it seems almost like a Clove, or all one Head; in-somuch, that I have known it tempt my next Neighbour, indiscreetly to let it stand for a Crop of Grass the next Summer, for the Subsistence of his Horses, Cows or Sheep; but then he did not consider, while this is feeding, it is all that while making a stronger and larger Root in the Ground, whereby it becomes a greater Sowrer of the Earth, and Killer of the Corn, which this will sometimes do to a great degree, where (especially in a wet Spring) it has got a sufficient Footing in the Land. The Cure is good Ploughings with strong Teams, and giving the Ground its due Fallowings, for Cross-cropping is a great Promoter of this Weed.

The Thistle is said to be an Indication of good Land; but wherever it happens to get Possession, it is no welcome Guest, for that it does its share of Damage amongst Grain, proportionable to its Root; it is most common in the rich Vale Lands, and too often in our Chiltern Grounds, where in both, if it is let stand till its Seeds are ripe, the Winds will carry its light Flue to great Distances. Its Cure is often Ploughings, due Fallowings, the bite of the Sheep when the Weed is young, stocking them with an Iron Paddle, sowing of Clover, and good Weeding at the proper Season.

Wild Thetch, Tyne, or Bind-weed, is an ugly Companion amongst the Corn, especially if the Spring-time is attended with Wets, and Colds, for then it's natural for this Weed to get the Pre-dominancy of the Corn, which was shewn this last Sum-

Summer, 1732, in the moist Clays and Loams, where it grew up Creeper-like, and proceeded in its Altitude, from the Foot of the Wheat Stalk, and gradually so twisted about it, till it got up to its Top, and by its Weight, hauled and pulled down the same, to the destruction of its Ear; and this it sometimes does to almost a whole Field of Wheat. The Cure is good deep Ploughings and due Fallowings, also well chalking the Ground; for according to my Observation, it comes most where those three are chiefly wanting.

Dock. This Weed runs into the Ground, like a Radish, as to its depth and bigness, but is much easier propagated; for a small bit of this is apt to take Root and grow; they impoverish the Ground, and do a great deal of Mischief to the bad Husbandman's Land, by their easy Encrease; for if they lie on the very top of the Ground some Months, they will grow afterwards if they can get into the Earth; some say they are good for nothing, others say, in Dock out Nettle, and Dr. Quincy, that they are good in Dyet-Drink, and for Cutaneous Distempers. Their Cure is by pulling them up in wet Seasons, and carrying them off the Land; or by gathering them after the Plough and Harrow.

Crow-Needle, bears a white Flower, about half the height of the Corn, but spreads much; their Seed or Needles are about an Inch and a half long, which fowls the Corn, by their being broke to Pieces when they are threshed with the Grain, and are hard to dress out. Their Cure is sowing clean Seed.

Cliver, or Chickweed. This twists about the Wheat, like the Tync-weed, and does his damage much like it. His Seed is a little round Burr. The Cure is sowing clean Seed.

Horse-Gould, is a general destructive Weed, that comes up in a fine Tilth with the Wheat, keeps it Company till Harvest, is about half the Length of the Wheat at that time, and if in too great a Quantity cripples it, to the Farmer's great Loss. It has a yellow Flower, and its Seed a flat rough Burr. The Cure is very difficult, for some have attempted to eat it off with the Wheat, and failed, for they will not eat it if it is old; others have turned in early and succeeded better. Another I knew that turned his Sheep in early enough, and eat both that and the Wheat up clean, but this being done on a wet Loam, and a cold wet time following, the Weed recovered before the Wheat, and spoiled most of the Crop.

Black-bennet. About the fourth of *May* 1730, The Black-bennet began to shew itself a Foot long, both in Tilths and Lays, having had a wet Spring and Easterly Winds succeeding before that Day: In this case the latter sowed Wheat fared best, because when the severe Weather was over, its Youth caused it to run faster than the forward Sowed, and got the better of the Bennet, when that became set, by its early and longer Growth, that gave an Advantage [to the Bennet to be predominant and cripple it: This Weed attacks the Wheat mostly; and sometimes others, chiefly in Clay wet Loamy Ground, and now and then in Gravels; where it makes often a great Desolation, and spoils great Part of the Crops; It is occasioned by a sour rough Tilth, and a cold wet Spring. The best Cure is a sweet and a fine Season to sow the Grain in, and a well-dress'd and chalk'd Ground.

Darnel. This is a rampant Weed that mostly hurts the Wheat, because in Barley, its Quality is to add Strength to the Beer, by making it more heady, which causes the Malster not to find fault with it, if not in too great a Quantity: But

as the Colour of its Flour is brown, rough and of an ill Scent, the Mealman much hates it. This is a most multiplying Weed, for many of its high Stalks will carry twenty Side-shoots, and every one six Corns in it, so that twenty of its Heads are enough to spoil half an Acre of Wheat: It is of so hardy a Nature, that it's usually said, the Dunghil will carry it to the Field: That is, it is so difficult to kill, that it will often endure a Winter Lodgment in the Dung, and yet grow when it is brought with it into the Field. The Cure is, well dressing the Grain with a Screen or Wire-Sieve, which will take most of it out, and by often turning the Dunghil. I knew a Farmer that Rented sixty Pounds a Year, say that he lost twenty Pounds by it in one Year.

Chefs. This is a Darnel that grows in a different manner, hanging in little Bunches, on small Stalks that are about an Inch long from the great one, and is remedied as the other.

Cockle. Is a little Seed with a black Husk full of white Flour, for which reason the Meal-man does not much dispute its being amongst the Wheat, if not in two great a Quantity. To prevent this Darnel and all other Weeds; the only way is always to sow clear Seed; for 'tis a true Maxim, that Weeds have the Pre-eminence over all other Vegetables. Langly Beef, &c. is a Weed I have described at large in my first Book, Page 39.



CHAP. XXXVIII.

The Nature, and Improvement of PLOUGHING.

AND here I shall begin with writing on the behalf of the Ploughman: This Servant is allowed to be the Capital of all the rest, and therefore has the greater Wages and Liberty of all others; because on his Skill and Labour greatly depends the Success of all the arable Crops, which in many Places is most of the Farmers yearly All; this Man then is but justly indulg'd in those two Properties beyond the other Servants, and to say the Truth, a good Workman in this Science deserves double in my Opinion of him, that has this Knowledge but in part; for if good Skill does not accompany his Labour, he may make two Ploughings where one will serve, and not bring the Land into so good a Tilth as the other with one, which is frequently a Disaster of very ill Consequence to the Farmer, because he not only hereby loses his Time, Charge and Labour, but also the Benefit of a good Crop besides, that has partly been the undoing of many Tenants, and also a Loss to the Landlord and Nation; It is therefore that I recommend this Sort of Man as the first and greatest of his Care to provide himself with; or in case of a large Quantity of Land, a Hind, Bailly, or Overseer, that knows how to give Direction, and is a Judge of the best Methods for the Improvement of such Undertakings.

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The Plough is an Instrument that is so universally known, that it needs no Harrangue, either of Prose or Verse, to set forth its great Utility; and therefore I shall proceed directly to treat of its Management, both in Vale and Chiltern, viz.

Vale Ploughing.

THE Vale of *Ailesbury*, if I am not mistaken, is accounted the next greatest and best in *England*, to that of *Essex*, which extends it self through the Counties of *Gloucester*, *Worcester*, and several others, along the River *Severne*; and are both so exceeding fertile in their natural, marly Soils, that they are justly called the Magazines of the Nation; for when these fail in their Crops, a Scarceness and Dearness consequently ensues: Here then is required less Art and Dressing to obtain a Crop, than in the Chiltern; because their Ground mostly lies in open Fields, under a certain Rotation of Practice, which is obvious to every next Neighbour; so that Farming here requires more Ability than Skill; however, they are not without their Inconveniencies attending these rich Grounds, as the Rot of their Sheep, the Flood of their Lands and many others, that necessarily have brought on different Methods of Farming, from that of our dry, high Country.

Here the Foot Plough is almost altogether used, as the best of all others for its Operation in their wettish, muddy Grounds, that are free from the Opposition of Stones; and with this, they very dexterously work their Land, by ridging up and casting down.

Ridging up, is done by beginning in the middle of a half Land, or half Acre (in which Fashion, most of all their Vale Grounds lie, for the greater Convenience of carrying off the Water) with
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the Foot Plough, which the first time of Fallowing fills in the great Middle-thorough, that was left when the last Grain was sowed thereon; by drawing the Plough up and down each Side of the middle of the Land, till the half Acre is all ploughed. In this Mode all their Ground is ploughed, till they sow their Grain and then they alter.

Castling down, is only done the last time when they sow their Seed, by beginning at each Outside of the half Acre, and ploughing every Thorough down, till they come to the middle; when they leave a large Thorough, wide enough for a single Horse to go along, without offending the Corn, if it is not too high.

For Wheat, they begin to plough or fallow up the Bean Stubble in *April* for the first time, and harrow it down before they plough it again, which is all the Harrowing they give their Wheat Land; then about *Midsummer* they plough it again, and let it lie till the middle of *September*, when they plough and sow the last time for good: But the more industrious Man will give his Wheat Land a Fallow in *April*, and two Stirrees between that and sowing time, so that in all there will be four Ploughings. Now the Fallow Ploughing is performed by ridging up, and so is all the two Stirrees after the same Fashion; but the last Ploughing is done by casting down the Land; so that they harrow but once, and that is after the first Ploughing; and at last they leave a large Thorough in the middle, unless it be in a very low, wet Piece of Ground, which some always ridge up, the better to keep it dry.

For Barley, they plough the Bean Stubble four or five times in all. The first Ploughing is begun in *April*, for they say, *Better an April Sop, than a May Clot*, which often makes the Sluggard put forward

forward to get his Ground ploughed in this Month; then they harrow it before they plough it a second time, which is about *Midsummer*; and at *Albollantide*, they plough it a third time, and let it lie till *March*, when they plough and sow for good. Here then is one Fallow and two Stirrees, that are done by ridging up, and the fourth time by casting down and sowing; some of the best sort will give it a Fallow, and three Stirrees before they sow it.

For Beans, they give the Wheat or Barley Stubble only one Ploughing, by casting down the Land, and harrow after sowing; which some do presently, others not till the Beans appear: This is usually done at *Candlemas*, according to the rhyming Proverb, *At Candlemas Day, it's time to sow Beans in the Clay*.

Peas are done after the same manner, but something later.

Chiltern Ploughing.

THE Chiltern Farmer's Condition varies much from him in the Vale, and particularly as to his Ploughs; for as the Valeman uses but one sort, the Chiltern-man is obliged to occupy no less than three several sorts; and they are the Fallow Plough, Pea Stitch, or Scent-seed Plough, and Wheat-seed Plough; besides the necessary Occasion there is sometimes for the Foot Plough, the *Kentish* Broad-board Plough, the Creeper, and the Swing Plough. All which I shall by and by say something of.

At *Carrington* near *Dunstable*, on their high, clay Ground, they sow all they can in Stitches, to keep the Corn dry; for in these, the Roots are more exposed to the Sun and Air; so in Gravels and Chalks, they more frequently than for-

merly run upon the Stitch; because in all Soils, it saves the Rains and Dressings better than the broad Land; for as the Rains fall on the Stitch, it washes from the upper Part downward; by which the Goodness gradually descends on the Sides and lower Parts, till it comes into the Gutter between the Stitches, and there meets with the Bottom Root: And of Stitches, the lesser one is accounted best in the Clays and Loams, because it lies more sharp and open, for the reception of those Benefits that the kind Seasons afford. This Way has got into such Esteem at that Place and *Kensworth*, that several there sow their Oats in Stitches; by first bouting up the Land in *November*, and in *February* or *March* they sow the Oats in four Thorough Stitches, by a Man's following the Plough, and straining them into the Thoroughs. But in Gravels and Chalks, their Stitches are something broader than in the Clays and Loams, as being drier Soils; and are commonly made at the rate of eleven, to two Poles length; which, and other Ploughings, I shall describe as follows, *viz.*

Broad Land Ploughing, is what is ofteneft done both in Vale and Chiltern of any other, and is commonly the first Operation that is performed on a Stubble of Corn, or lay of Grass, with either the Fallow or Foot-ploughs, being drawn as close as can be on the Ground, and turning the Land, Thorough by Thorough into a flat even Shape and Form. This Method being easiest for the Horses, at the first breaking up of the Grounds commonly precedes and makes way for that of Bouting, Four-thoroughing, and Hacking, &c. and is called clean Ploughing.

Bouting, or Bouting-up, is a Half-ploughing of the Ground, by making a single Stitch, either from off broad Lands, or Wheat Stitches; it is done

done as the first fallowing about *Alkollantide*, to prepare Wheat Stitches for sowing of Barley or Peas, by making one Thorough, which raises a small Ridge of Earth, then at near a Foot distance another in like manner; both these together become one Ridge or Bout, and is very proper for giving the Frost an Opportunity to kill the Weeds, and sweeten the Ground. Next time is the middle of *February*, when they bout it down, and harrow it plain cross-wise, where it lies perhaps a Fortnight, and dung it all over; then plough it into broad Lands, and harrow in Barley. This Bouting, is also done by ploughing two Thoroughts off a Barley Stubble at *Alkollantide*, within a Foot of each other, that makes a Ridge or Bout to prepare the Ground for Peas, which is to lie till the middle of *February*, when the Bout is to be harrowed down; and at the beginning of *March*, they plough it the same way as it lay before, into Four-thoroughts, which they sow by straining in the Peas, and harrow it directly down. Bouting is also performed in Summer, by first ploughing the Oat Stubble into broad Lands, in the Month of *April*, which is called Fallowing them in *June*; that must be harrowed plain, and ploughed into Bouts, that may lie till a Month after, when it is to be ploughed up again, which will clean plough that Ground that was not broke the last time; by running the Plough this time backward and forward through the middle of the Ridge or Bout; this will raise another Ridge, that will lie directly upon that which was a Thorough before: Then a Fortnight, or Month before the Ground is sowed, it may be either back-bouted or thoroughed down, and harrowed a-cross directly; when it is in right order to sow Wheat in Stitches.

Bouting-down, is done by making a shallow Thorough on each Side of the Ridge of the Bout, whereby a fleeving, or a narrow, thin, Ridge remains in the middle; this is done on purpose for the Harrows to pull down, as they are drawn across the Land to level the Ground, by preparing it for the last ploughing and sowing of Wheat. This is also called Back-bouting.

Thoroughing-down, is a Work sometimes done instead of Bouting-down, or Back-bouting; by drawing the Wheel Fallow-plough only once deeply through the very Ridge of a Bout, or Stitch, and laying it in order for the Harrows, that will, by drawing them a-cross, level the Ground ready for ploughing and sowing of Wheat; and it is performed as well as the Bouting-down, according as the Earth requires; for if it is very fine and loose, then thoroughing-down, as it is less trouble, will be sufficient; but if it is not in quite good Order, then Back-bouting is the more necessary, by reason it fines the Ground something more.

Four-thoroughing, is performed by the Wheel Fallow-plough, when the Ground has been the time before fallowed into broad Lands, and harrowed plain; this then is instead of a Stirree, and will sweeten the Ground to an admirable degree in the Summer, against the Wheat Season, which some harrow, and some doe not, before the next Ploughing; and that is, bouting up these Stitches, which is the third Ploughing; the fourth is Thoroughing down, and Harrowing plain; then it is ready for sowing Wheat in these Four-thorough Stitches, with the Wheat-seed Wheel-plough. This is not quite clean Ploughing, yet is reckoned the very next to it; because this way brings the Earth under an expeditious Fineness and Sweetness; by reason it breaks and exposes most part of it to the Sun and Air, by its higher Situation than the

the broad Land; for by this Mode, the Land is raised beyond its common Level, and thereby can better discharge the fugging Wets, that often by their long lying on the Clays and Loams, sour the Land; this Way is done by drawing the Fallow-plough backward and forward, till Four-thoroughs are made almost close together, which is a sort of ridging up; beginning first with one of the uppermost Thoroughs, then almost close to that another Thorough, whose Earth will joyn that which came out of the first; then on each Side of them, another Thorough must be made as before, which will compleat a Four-thorough'd Stitch. This is something a more tedious Operation than the broad Land, but generally sufficiently pays for both Time and Trouble. The Wheat Stitch lies very *apropo* for this Work, and is often at *Albion-tide* ploughed into Four-thoroughs, that remain so till the next Spring, when they harrow it down, and plough it again into the same Four-thorough Stitch, in which they strain their Peas, with the Wheel-pea Stitch-plough.

Hacking or Combing, may be called a clean Ploughing, if the Ground is fine when this is done, and the Plough-man leaves not too great a Kicker; for this way is commonly the last Operation but one, just before they plough for good to sow Wheat, Barley, and Turneps: It is done on broad Lands, by making a Thorough with the Fallow Wheel-plough, and making another so close, that it throws in that Earth that first came out, and fills up the Thorough again; then they sometimes leave a small bit of Ground, which they call a Kicker or Sleeving; and then make another Thorough, and so proceed, by throwing that in again as they did the first. This Way is a prodigious Sweetner of the Ground, and tears it all to Pieces with the help of the Harrows that directly succeed

succeed this Ploughing; then the next and last Ploughing is done a-cross the Land, which still adds to the Fineness of the Tith.

These several different Ways are of very great Moment in getting Ground into Order for the reception of the Seed, which is the main Art of Farming; else the Weeds, and sourness of the Ground are apt to become Master. And as the Farmer is obliged to keep Seasons in Ploughings and Sowings, he hereby has an Opportunity to get Ground sweet and clean, by a skilful Method in a confined time, which otherwise perhaps could not be done, as often is visible in Grounds of Turneps, that are eat off by *Albollantide*, *Christmas*, or *Candlemas*. These times call for various Managements: If at the first two, then the Earth should be Bouted up and let lye till the middle of *February*, when it should be Back-bouted or Thoroughed-down and Harrowed level, then it's ready for the last Ploughing into broad Lands the Cross-way of the former, and fit for Harrowing in of Barley. But if at *Candlemas*, the Turneps are eaten off, then they often Hack the Land, and let it lye to sweeten till the first of *March*, when they Harrow it plain, and so let it remain till the middle of that Month, and then they Plough it a-cross and Harrow in Barley.

Others again at *Albollantide* or *Christmas*, will Plough it into four Thorough Stitches, which will much better sweeten the Land and kill the Weeds than broad Land Ploughing; this they let lye till *Candlemas*, when they bout it up, and at the first of *March* back-bout it down, Harrow it well, and is then ready to Sow a Fortnight after, by Ploughing a-cross.

These are certainly much the best Ways if Time will allow after the Turneps are eaten off; for broad Land Ploughing, in Winter or Spring especially

pecially, has been the Cause and Ruin of some Crops, it being only a turning the Ground topsey-turvy; the Twitch and Weeds are not so soon killed, as when the Land is more laid open, for in this Way, as I take it, the Earth is but half exposed when Boutting or Hacking, does it at least three Parts in four, and keeps the Land dryer, and more to the Sun and Air.

But when the Turneps are eaten off late, and Opportunity won't admit of plurality of Ploughings, then they give it but one Ploughing in Broadlands, and Harrow in the Barley or Wheat; because the Sheeps Dung by a thin Ploughing, lies just under the Barley for it to Root into, and have the sudden Benefit thereof; this is reckoned a surer Way than two Broad-land Ploughings, by reason this being often a wet Season, the Danger of a double Ploughing is, that if it should Rain after the first Ploughing, it will bake the Earth down and never be fine; but if a dry fine Time follows, then it is better than one, and the first Ploughing must be deeper than the second, to turn up again the Sheeps Dung.

The Wheel-fallow Plough: Its strait Beam is made of Ash, and is eight Foot eight Inches in Length, four Inches Square at the Butt-end, and three Inches Diameter at the Fore-part or Round-end, has seven Holes of an Inch-bore each, at three Inches asunder, the forward Hole being within three Foot and three Inches at the End of the Beam: These are made for shifting a Teaming-pin of about eleven Inches long, as often as the Plough is required to go deep or shallow, by the help of two Iron long Links and one Iron round Collar, in all two Foot ten Inches long, that comes from the Bottom of the wooden Stock: Its winding ashen Staple is six Foot long, and fastened both to the Beam, and an Iron Mortaise
of

of the Sharr behind, about four Inches Diameter in the Middle, and serves the Ploughman with the help of a loose Staff of eight Foot long to guide the Plough by: Its slopen ashen Sheaf is two Foot four Inches long, that is mortais'd into the Beam at one End, and fastened into the Mortaise of the Sharr at the other End with an Iron Pin: Its Iron pecked Sharr is four Foot three Inches long, and fourteen Inches broad, three Inches winding, and sixteen Inches behind distant from the Beam, and a Bridge for the Plough-staff to lye on, fastened with three wooden cross Pins: Its Standard Iron Pin is twenty Inches long and one Inch Diameter, shifted into three Holes in the upper part of the Stock as occasion requires to keep the End of the Beam steady, with the help of a Chain of six small Iron Rings and a large one fixed to the Stock, thro' which and the two Wheels runs an Iron Spindle or Axel-tree of three Foot long, and an Inch Diameter: Its Iron wrung Land-wheel is twenty Inches, and the thorough Wheel two Foot Diameter: Its Iron-forked Wheels are fastened to the Stock, and are fourteen Inches long and ten wide, to this is an Iron Mortaise joined of eleven Inches long, that the wooden Way of four Foot four Inches long is pinned to, at each End of which, are two Whipple-trees of two Foot sixteen Inches each, that the Horses draw by:

This is the strongest and largest Plough used by the Chiltern Farmer, is drawn by two, three, four, five, or six Horses, and imployed at Fallow and Stirree Times, &c. in Boutting, four Thoroughing off broad Lands, Hacking or Combing, broad Ploughing, throwing down Stitches into broad Lands for Sowing of Oats. And is more useful in hard and stony Grounds, than either the Swing, Bobtail, or Foot Plough, because its Sharr being
fastened

fastened by two Mortaises, stands and works more firm than either of them.

The Creeper or Bobtail Plough differs in little or nothing from the Fallow Wheel-plough, but that its Sharr is only three Foot in Length, and but one Iron Mortaise that fixes it to the Sheath with two Iron Pins, besides a Hook that fastens it to the Beam; It's fore-part lying on the Stock of the Wheel-Carriage, as the Fallow-plough does, and its Staple four Foot four Inches long mortais'd into the end of the Beam, with a loose Plough-staff: Its Work is to plough up Stubbles, particularly in wet Weather, and is used at other times in wet Clays, Loams, or other cloggy Grounds; because its Sharr, not being fastened to a Staple behind, gives Room for the Earth to tumble off, that it does not hang on and load the Plough as it's apt to do in the long sharr'd sort. Some so affect this Plough, that they will make it their common one in Fallow, and other Seasons; but in very dry, hard Grounds, this Plough is not capable of making its way through with its single mortais'd Sharr, when the Fallow Plough can, whose Sharr has a double Mortaise.

The *Lent* Seed Plough, is a Wheel-plough, something lesser and narrower than the Fallow-plough, and is chiefly used to plough the Wheat Stitch into a Stitch again, at the same time that Beans or Peas are sown, or strained therein: I have known it also used to throw down the Stitch into broad Lands, for sowing of Wheat a second time the very next Season after the first, five of which so ploughed made one broad Land; for the Conveniency of one broad-casting of the Seed, and for the better shooting off the Wets, for the narrower the broad Lands are, the more Thoroughts there will be to keep the Grain dry; on this one ploughing they harrow the Wheat in, and sometimes

succeed very well; but as this is cross-cropping the Ground, I cannot commend it; however, the most common Way to plough these Stitches into broad Lands, is done with the Fallow Plough, where they are not very narrow. This *Lent* Seed Plough having its double mortais'd Sharr fastened to the Staple and Sheath, in the same manner of the Fallow and Wheat Seed-ploughs, is generally strong enough to make its way thro' the Stitches of hard Grounds.

The Wheat Seed-plough, is the least Wheel-plough of all others, being the narrowest of any, for the sake of making a narrow Thorough, whereby it prevents the sweeping or driving of the Ground into the Wheat Stitch at the time of sowing.

The Swing-plough differs from the Foot-plough, in that it has no Foot, and two fixed Handles, one being the Staple, and the other a Handle fastened to the broad Board, is something bigger, especially in the Beam: Its broad, flat-tish Sharr about eighteen Inches long, is fastened to, and put on a wooden Neck; but there are others that work in harder Grounds, whose Sharr is rounder and sharper, and has an Iron-plate put on the Bottom of the wooden Neck for its longer duration, which is fastened to the Sheath; the Sharr also is tuck'd up to the Beam by an Iron-hook: This Plough has a Cock of Iron fixed at the end of its winding Beam, with five Notches, to which is joyned five or six Iron-links, that are about eighteen Inches long in all, that again are fastened to an Iron-hook, in the middle of the way; and thereby made to rise or fall, as the way hangs lower or higher to the two Ropes or Chains, that are held by the Ridger of the Cart-saddle, on the Till-horse: This Plough has no Teaming-pin nor Holes, as the Wheel sort have, but its
Coul-

Coulter is much the same, has besides its broad Board, a narrow one on the Land-side, to keep the Dirt from making a Lodgment: It is mostly used in *Middlesex*, as their general Plough for sowing of Wheat, Barley, Peas, Beans, or Oats, in six or eight Thorough'd Lands.

The Foot-plough, is so called from a Piece of Wood, or Iron made somewhat like our Foot, at the end of a Stick or Iron, about eighteen Inches long, that is fastened in a small Hole, near the end of the Plough-beam, which slides on, and keep it from entring the Ground, and is drawn by a single or double Row of Horses: Its Beam is about four Inches thick, crooked or winding, and eight Foot two Inches long; has no Holes nor Teaming-pin, Stock, nor Wheels; has one Staple fix'd into the End of the Beam, four Foot three Inches long, and is guided by this and a loose Plough-staff; its broad, flattish Sharr is about eighteen Inches long, put on a wooden Neck, that is fastened to the Sheath; its Coulter in the usual Place; its broad Board two Foot four Inches long, and sixteen Inches behind, distant from the Plough-beam; its Cock of five Notches, is fastened by an Iron-pin, within five Inches of the Beam's end, and the Foot in a Hole just by that; with this they do all manner of Ploughing-work in the Vale, for all sorts of Grain that they sow.

The *Newmarket*, or flat sharr'd Plough. This is a new Plough, and lately sent for some Miles distance, by a Gentleman of *Hertfordshire*, to plough or cut up his Ant-hills, or Mole-banks; it is made in the very same manner that our Harrow-slides are; whose Sides of Oak or Ash are three Foot long, six Inches thick, and three Foot wide; a little more forward than the Center, is an Iron, somewhat above two Foot long, four Inches broad, and about four Inches thick crooked, or winding in

a circular Manner; this at each End comes under the Sides of the Plough, and keyed up, so that its flat Edge lies a-cross, almost even with the Ground; the fore End has two Staples fixed, that the Horses are fastened to, and draw in a single Row; the hind Part or Ends, have two Handles fixed, for the Plough-man to guide it by; and as it is drawn to a Mole-bank, he bears it up, which a little lowers the Sharr for cutting thro' the Bottom of the Bank, which it will gradually do, if it is not too big, nor the Moss too high: But in the Place where this was intended for Service, it would not answer; because the Banks were too large and too thick, so that the Plough-man invented a Method accordingly; and that was, by fixing a Fin of Iron a Foot and a half long to the Foot-sharr, in the common Foot-plough on the off-side, or on the same side the broad Board is; this did it effectually, by drawing it backwards and forwards, as they do on broad Lands; and after the Turfs of these Banks were put together in many Heaps, and in nine Months rotted, they spread them about, and then drew a Gate or Hurdle with Bushes, that dispersed them all over, to the great enriching, and thickning of the Ground.

In the Month of *January* last, 1732. a Plough was invented and first tried, that will perform just double the Work with the same Number of Horses, as the common Wheel or Foot-plough will, in broad Land and stich Ploughings; in the same space of time, and with little or no more trouble to the Plough-man; and that only with what is fixed to one single Beam. If any Person wants to be further informed in this particular, this Author is ready to give them Satisfaction.

But there is another sort of Foot-plough, that has an Iron Neck joyned to the Sharr, and fastened by an Iron Mortaise, to the Wooden Sheath, with

with two Iron Pins like the Bob-tail Sharr; its Beam like the other, but something thicker: This of late is much used in the Chiltern Country, to plough in hard Grounds, such as Gravels, and other stony Sorts, with an Iron Wheel of about five Inches diameter fixed in the Foot, which is not so soon stopped by the Stones, as the Iron or Wooden Foot alone would be: It is a lighter Plough for the Horses than the Wheel-plough, when the Ground is wet and heavy; and as the broad Boards of this is more crooked than that of the Wheel-plough, it will turn the Thoroughs into the broad Lands better than any of the Wheel sort; and is also often used by the Chiltern Farmer, to draw out at Wheat-seed time, when the Wheat-seed Plough follows and hents after: These Iron-neck'd Foot-ploughs by some are used almost all the Fallow Season, instead of the Wheel Fallow-plough, and are drawn commonly then with a double Row of Horses, fastened to Whipple Trees; but when it is used in hoeing of the Rows of Beans, they go in a single Row, thus: The Till Horse is fastened by two Trace Ropes to the Way that hangs by the middle to a Chain joyned to the Iron Cock; the next Fore-Horse to another wooden Way, that hangs between him and the Till Horse; but here is an Extra pair of Chains besides, that are fastened to the Ends of both these Ways, and used to rise and fall the End of the Plough-beam, by a back Rope tyed to them on each Side of the Till Horse, which keep up the Way, and causes the Plough to go deeper or shallower at pleasure, in the same manner as the Swing Plough does, but the other Horses are only fastened to one another in the common Method. The Wheel Foot-plough is also made, as to take out or put in at discretion.

The

The *Kentish* Plough, is a larger, heavier, and more clumsy Plough than any of the aforementioned sort, having its Wheels commonly as big as the forward Pair of a Chariot: It is very convenient to plough the Sides of Hills, because as they alter or shift their broad Board at every end or turning, they leave no Thorough or Henting, but plough the Ground all one way.

The Trenching Plough, is either a Wheel or Foot-plough, and differs only in its bigness and strength, being sometimes drawn by eight, twelve, or more Horses, in making of Drains and Water Thorougs; and also among Roots, after Wood has been stocked up: In the Vale they are frequently maintain'd at a Parish Charge for their common Service; and in the Chiltern, I have known this great Plough used to make a small River deeper in a dry time, by ploughing up its bottom several times, to lessen the Charge of digging.



CHAP. XXXIX.

The Nature and Improvement of SOWING.

THIS is another most useful Knowledge in the Farmer's Way, because it has often been the Occasion of making, and saving the marring of many Crops, which made a great Gentleman tell me, at my Bookseller's Shop in *London*, that he thought most of our miscarriage in Farming,

was

was owing to the too thick sowing of our Grain: But I must here take leave to let him know, that it is mine and other Farmers Sentiment, most of our Failings in this respect is owing to our too thin sowing; for as an old Quaker Farmer said — I have lost a great deal in my time by sowing thin, but I never yet suffered by sowing thick — Yet it is certain they are both Extrems, and have been the Cause of great Losses in Crops: Wherefore I will endeavour to shew the particular Misfortune of both Faults.

First then, by sowing thin, there is room given to the Weed to take its Rise, and make its Progress among the Grain, without interruption either of its Root or Branch: Now all are sensible that a Weed out-runs the Corn; because one has its Production naturally from the Earth, while the other is brought forward in some measure by the help of Art; and therefore has not wholly that Advantage in the Ground as the Weed has, which is the Occasion, why all Trees as well as Weeds thrive fastest where they have a spontaneous Growth: It is for this Reason, that Wheat and other Grain are sowed directly on a fine Tilth, where the Weed is at that time check'd or kill'd, that it may get the start of their lateral and high Growth, by which it is enabled to keep back, choak, and vanquish the Weeds breeding and running up. It is also for this very Reason, that a right Farmer won't sow his Clover Seed amongst his Barley, till a Fortnight or three Weeks afterwards, that the Grain may have an Opportunity of getting Dominion over the Grass; from this thin sowing often ariseth that grand Misfortune of the Wild Oat and most other Weeds, that generally attack the vacant Interspaces of the Grain, and become almost sometimes a total Destruction to a whole Field of Corn; especially on
Ground

Ground newly broke up, that before had been a Lay of Grass or Wood; which by a thick sowing of the Grain are mostly hinder'd, for the Ground can but carry its Burthen; and if it has it not in Corn, it will in Weeds, which I think is a plain Demonstration, that thick sowing is the lesser Fault, altho' I am sensible of the main Objection to this Argument; which is, that by sowing thin, the Ear will be the bigger; and so it had need, considering the Ground and Dressing each distant Stalk takes up; but this is attended with smaller Kernels, and the great Risk of being choaked by Weeds, and more subject to Blights and Blasts; besides, when the Corn grows thin, it has not the Opportunity of being so soon and so well ripened, as if thicker; because the Ears are apt to bow and hang down, that the Sun cannot come to all their Parts; and then they are more exposed to the Violence of Winds and Rains, that often more easily bend down their Stalks and Ears.

By consequence then, thick sowing must have the Advantage of the two Extrems; because it greatly prevents the Growth of those Weeds, whose Mischiefs seldom are over at the Barn; but too often are known to insinuate themselves into a Growth in the Field, notwithstanding the Dung-hill has been more than once turned: And first, By thus sowing the Corn thick, one Stalk becomes a Support to another, and so the better withstands the furious Winds and Rains: Secondly, Hereby the Ear of the Grain is kept upright, and more expos'd to the Sun and Air's fruitful Influences, that ripen it sooner and kinder, by having Access to all its Parts: Thirdly, the Growth of Weeds is often absolutely hindered, by the plenary Furniture that the Ground enjoys from the Roots of the Grain: Fourthly, The Ear that
grows

grows clear of Weeds, and has full upright Growth to the last, has generally a bigger Kernel than the thin sowed one has. And now I am come to the main Objection that can be offered against this Practice, and that is, that by the greater Quantity of Seed that is sown, the Crop becomes hopper, small ear'd, and will not yield like that large one, that has more room for its Growth.

Now to these Pro's and Con's I answer, that as no Extream can be good, it is the Farmer's Business to fall in with a Mediocrity, neither too thick nor too thin, for then he must be right, as to the Check of the Weed, and Growth of the Corn; and therefore I shall here set down the Quantity of each Seed that we generally sow for Crops of Corn and Grass.

Wheat that is sown in Tilths, are by all the judicious esteemed in the Chiltern, at two Bushels and a half on an Acre; but even here there is a difference, for two Bushels and a Peck at the beginning of September, is equal to two Bushels and a half a Month after, for the later the Spring the more should be the Seed; because it is more apt to die by the Cold and Wets, than the more forward sowed, that presently by the Clemency of the Weather, gets up to so great a Head, as to cover the Ground, to the keeping down the Growth of Weeds, and is also sometimes much devoured by the Rooks, Crows, and other Fowls. Then there is another difference in the Soils; particularly in the Gravelly ones, which are called dying Ground, from the many Stones that they abound with: In this, Numbers of the Grains are hindered coming out: Also by its binding Quality, so made by the heavy Rains falling presently after Sowing; and by the Poverty that usually affects this Earth: For all which, there is often an Allowance made by Sowing more Seed here, than on the rich loose

Loams, where sometimes two Bushels and a Peck is equal to two Bushels and three Pecks on a Gravel; but in case the Loams are very wet at the Time of Sowing, then there must be the more Seed allowed, because some part of it will be smothered and not able to come out of the Ground. Likewise in new broke up Grounds, there must be at least two Bushels and three Pecks, or three Bushels sowed on an Acre to prevent the Wild-oat, and allow for the Worms and Birds eating it; but in such Earth, a Crop of Oats is commonly first sown to tame its over-luxuriancy, and prepare it the next Year for sowing Wheat. And indeed, in all Ground where Wheat is only harrowed in on broad Land, there must the more Seed be sown for the Reasons before mentioned.

In the Vale they commonly adjust their Quantity on an Acre to two Bushels and a Peck, as being full enough for their rich Ground, that naturally causes it to gather and bunch beyond our Chiltren Land; for here they are free from the Cover of Stones, and more than we from the hazard or bashing-binding Rains, so that they never much fear their Corn's coming out of their clean, loose, hollow Earth, which they venture first to sow all over with Seed, and then plough it in: Now this is what we dare not do in our high harder Grounds, lest we bury it and lose our Crops; for with us a Man follows the Plough, and strains in the Wheat in Four-thorough-stitches that the Plough first makes, and then covers again: But if we sow it on Broad-lands, then we commonly only harrow the Ground all over once in a Place, to prevent the Wheat's lodging in the Thoroughs, and immediately harrow it twice in a Place, backwards and forwards.

Barley-ground is first harrowed once in a Place to hinder the Grain's getting into the Thoroughs, then

then it is sown by Broad-casting all over the Ground, and directly harrowed both ways into the Earth. Some will sow one Cast, or half the Seed all over the Broad-lands before it is harrowed, as being a Security against a dry Summer, for then the Seed makes a deeper Lodgment between the Thoroughs; then they harrow it all over once in a Place; upon this they sow the other half, and harrow it in across twice in a place, and role it when it is got up three Inches long. The Quantity is generally allowed to be in Vale and Chiltern, four Bushels on an Acre, except when it is liquored, and then but three.

Peas are sowed by straining them in Thorough by Thorough, when they are once sown in Stitches, and directly harrowed well down. But if sowed in Broad-lands, some only harrow them in, others will sow half the Seed first all over the Ground, and plow them in as they do in the Vale, which as soon as done, will sow the other half over the same, and harrow them twice in a place backward and forward; this is called half under Thorough, and half over; but in the Vale they first sow them all over and plough them in, and then harrow directly. The Quantity both here and there is three or four Bushels on one Acre, the thicker the better, that the Weeds may be kept down. But I have sowed the Blew and other Peas with great Success in Drills and Thoroughs in a fine Tilth, made first by the Plough at eighteen Inches or two Foot Distance, and strain'd in by a Man's Hand, and covered by the Harrows over-thwart; these, when they are got about six Inches high, must be hoed by Men, and after that, when they are a Foot long, the Earth must be hoed on each side up to their Stalks, to kill the Weeds and succour their Roots against the Summer Droughts; thus by their distant

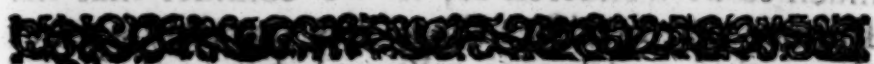
Growth, they will corn to a great degree and ripen early. The Quantity is not so much here, as in the other ways, for about two Bushels sow an Acre after this manner.

Beans, are sowed in the Vale on their Wheat or Barley-stubbles, by first broad-casting the Seed with a Man's Hand all over the Ground, and then ploughed in and harrowed. But in the Chiltern they are commonly sown on the Wheat-stitch, as it was left at Harvest, by a Man's following the Plough and straining them in, in four several Thoroughs that are made in the Stitch by the Pea-stitch-plough, which it also fills in, so that the Earth of one Thorough fills up another, and then the Stitch is harrowed down. The other Way in the Chiltern on a Barley Stubble, is first sowing the Beans all over the Ground as they do in the Vale, and ploughing them in with the Fallow-wheel-plough, and harrow them well after. Their Quantity is four Bushels on an Acre, unless drill'd in, or set, by making Holes in the Ground with a Stick or Dibber, and then less serves.

Peas, are also sowed with Oats, which is called Bullimon, and indeed is commonly a very advantageous Way, as I have a great deal of Reason to write of, for this Summer I received a large Crop of both these, off a piece of Ground that used to deceive its Owner for several Years past; but here the Pea sheltered the Root of the Oat and nourish'd it, till it was able to support and keep up the Pea from falling down; so that both contributed to each other's Fertility, and is certainly a sure and profitable Way. And so is

Beans sowed with Peas; which is often done as a double Security in the Chiltern. For if the Peas (as they frequently do) fail, the Beans generally hit, and will become a good Crop in a proper Soil, by having the more room to Corn; and

and if both grow well, then the Bean will keep up the Pea, that it corns and ripens the better. They are sowed about four Bushels on an Acre, half Peas and half Beans, either on Stitch or broad Lands. Some have sown them amongst their Barley, but there is this Inconveniency in it, that the Barley is ripe before the Bean, which occasions such a Dampness in it, as to spoil its Sale to the Malster, tho' some will do it for another Reason, and that is, to keep the Barley from falling down. But the Vale Men never sow Peas amongst their Beans, because it hinders the Sheep from coming at the Weeds. Yet I have known a Vale Man sow the Horn-grey Pea alone in April for a Trial, but then he had nothing but Blossom and Haulm for his Curiosity; for this Pea requires the earliest sowing of all others, tho' it is the latest ripe.



C H A P. XL.

The Nature and Improvement of SEEDS.

THE Knowledge of good and bad Seeds, is of such Importance to the Farmer, that on the right Choice thereof depends the Success of After-crops; and is really very worthy of a Chapter being bestowed on its Subject, for the Prevention of others coming into that Misfortune, that many have had reason to complain of for want of a due Information, how to distinguish the sound from the unsound; the proper from the improper. For by this means a Person is capacitated, not to rely altogether on a Salesman's Recommendation of

of his own Seed, who is generally a Stranger to the Buyer, and that for these Reasons. *First*, The worse Sort of them are sometimes tempted to make the most of their Goods as they call it, and put off their old decayed, or their unripe mow-burn'd and damaged Seeds to the ignorant, who certainly are more in Number than the skilful and judicious, and are thereby exposed to the superior Knowledge of the artful Seller. *Secondly*, Some again there are, who not being true Masters of their Business, are not sensible of the particular right Sorts themselves: An Instance of this happened but last Year. It was in a Shop to the Westward of *Temple-Bar* in *London*, where I ask'd the Master, which was the ripe and unripe part of some Lucern-Seed that I was there about buying; he answered he knew the biggest was best, but was silent as to the other. Nor is this so much to be wondered at, if we consider that the Farmer that furnishes them, has certainly a great Opportunity of having a Knowledge in the good and bad Sorts, because he is the Original Sower, Mower, Cleanser, and Seller thereof. I shall distinguish them as follows, *viz.*

Lucern Seed. The purple or brown sort of this, is that which had its due Maturation in the Field, and an Escape from the heat and burning of the Mow: And is therefore the right true Seed, that ought always to be coveted, and sowed by those who hope for successful Returns from sowing this Seed: This is truly that part which is best of all the three, and is the Medium of the two Extreams.

The white or green sort, is the unripe part that missed of that Benefit in the Field which the purple had; for in the very Ear or Head of this Grass, as well as in Wheat and other Grains, this Seed has its several Aspects, Situations and Proporti-

ons of Bigness before it is cut down, and will shew their Differences accordingly after threshing and cleaning; which is also obvious in all Fruits and Seeds that can be seen with the Eye. And therefore as the Seeds-man said, the biggest is certainly the best of all Grain and Seed whatsoever; but then he did not, or would not know any other Difference. This white and green sort then, is that which had not its due Maturity and Proportion of Bigness, and by that means is not capacitated to be so sure of Growth as the purple; and if it does not take Root, it's likely to be diminutive, and sooner overcome by the Casualty of Worms, Gnats, Frosts and Wets, than the stronger Root and Stalk is,

The reddish sort is the worst of all, tho' this might be as good as the best, when it was brought out of the Field, but was afterwards too much heated or burn'd in the Mow; either by the greenness or dampness of the Seed when it was brought out of the Field, or that it was mowed in too great a Quantity, or that it lay in the middle or thickest part of the Mow; for in these Cases it often acquires a reddish Colour, which is solely occasion'd by Heat, and thereby commonly spoiled, for then the vital part of the Seed is so burnt, that the farinous Radicle becomes dead, which in good Seed, is the first Life of all After-growth. Wherefore when Lucern, Clover, and some other Seeds, have too much of these two latter sorts amongst it, it is to be rejected as unfit to sow.

Wheat also will be redder ended than ordinary, when burnt or too much heated in the Mow; this is a degree short of sprouting at the End, which we call grow'd Corn; tho' they are generally both occasion'd by too much wet or Moisture; and when it is sprouted, it makes Bread lumpish, like unto Pudding. There is also another defective

tive sort, and that is called smutty Wheat ; not that I actually mean that Kernel, which is in part smutty already ; but the Kernel that grows in the smutty Ear, and yet to the Eye seems sound : This is that which is reckoned to be a Breeder of Smut again ; and therefore with the other two sorts are to be rejected for Seed. The knowing part of the Farmers are now become so curious, that they everytime change their Seed, as believing it to degenerate, if oftner sown on the same Soil than once : This makes a Neighbour of mine go yearly, a little before *Michaelmas*, to *Ailesbury*, where he meets a certain Man, who lives some Miles below that Place, and breaks up a piece of new Ground every Year ; on which he sows pirky Wheat : Now all Seed is reckoned best, off the Virgin Mould ; and therefore this Man sells his Seed sooner, and for more than others. So likewise it is observed, that the *Derby*, and *Warwickshire* Waggon, will carry Wheat from *Dunstable*, that comes off their chalky Grounds there, for to sow it in a contrary Soil, for its greater Improvement.

Barley, likewise shews it self red at each End, when it is mowburned, and is therefore justly rejected, both by Malster and Sower, as defective dead Seed and Grain, not fit to be used for making of Malt, nor in the Field ; and when it is thus spoiled, the very Hens will often refuse to eat it.

Oats, have sometimes their share of this Misfortune, as will appear by the Redness of their Ends.

Beans, Peas, Thetches and Tills, are all of them subject to spoil, when they are too much Mow-burned ; for then they will be reddish within, and without more or less, as they have in a greater or lesser degree received the Damage, and are

are to be accounted bad Seed, not fit to be sown again; for if one of these are put into the Mouth, and bit the side-way, they will easily come in two, when the sound one will not without a great deal of Violence. This made a Farmer, that I am acquainted with, search the Country for sound Beans, that he gave three or four Shillings extraordinary a Load for, when most others that were innd Wet the Summer before, were sold so much cheaper, as being Mow-burned; but then he had the best Crop in his Part of the Country. When Beans are cut down too soon, they will shrivel and be the smaller, which some are tempted to do by their Leisure at Harvest; but then they take care to Wad them as soon as Mown, and put them into single small Parcels, to prevent their heating.

If Peas or Beans are two Years old, they should be sown two or three Weeks sooner than those of one Year, to be equally ripe with them at Harvest. And some are so curious as to get out the bigger sort to sow, and give the smaller sort to their Cattle, which I think is a very good Piece of Husbandry; for 'tis certain, all the biggest Seed of any sort is best for Propagation: This minds me of some Stalks that grew in *Chedington Church-Field*, in June 1727, that carried eighty and seventy-odd Pods on each, which I was at the counting of.

Turnep Seed. This sometimes consists of three or four sorts of Colours, viz. the Green or Yellow, the Red and the Black. Altho' they all come off one Piece of Ground, and at the same time, and are oftentimes mix'd together in one Parcel; and therefore shall here explain their several Natures, viz. The Green or Yellow, is that which is unripe, and commonly will appear after sown, in shew with the best; but for want

of its due Maturity, will fail and come to nothing, or at most, to a small insignificant Turnep: The Red, is that which is ripe, but by putting the Seed together damp, or when dry, in a damp Place, whereby it heats; or that it lies in the middle and thickest Part of the Heap, and becomes hot and burns in a small degree, all, or part of the flowery Radicle, which so cripples and damages it, that it is in much the same Condition at sowing, as the unripe Green or Yellow: But the Black is the true full ripe sort, and will endure keeping in a dry Place more than one or two Years. Now to prove the Goodness of this, and all other Seeds; take a Pint of the best, and weigh against a Pint of the unripe, or burnt bad, and the heaviest will prove the goodness.



CH A P. XLI.

The Advantages and Disadvantages of HORSE-HOEING.

IN my first Book, I have wrote on this Subject; but here I shall write after a different manner, as the Transaction has since occur'd to my Knowledge: I own I have drill'd Blew Peas into Thoroughts, made by the Plough in my Field, and receiv'd back a vast Crop by Man's Hocing; but this is Horse-work, which certainly comes much cheaper.

In my Travels, I saw an Operation in this last Article, perform'd by an ingenious Ploughman, that

I shall particularly take Notice of, *viz.* It was on an Oat Stubble that Dung was laid on just before *Christmas*, when they ploughed it into broad Lands with the Wheel Fallow-plough, that lay till *Candlemas*, and then they harrowed it plain, which as soon as done; with the narrow Wheat Seed Wheel-plough he made a Drill or strait Thorough, that a Man followed and strained Horse-beans into; then the Seeds-man stood still while the Plough-man covered the first Thorough as shallow as he could, by making another Thorough close to the first; then he proceeded in the like manner at six Foot distance, and so on throughout the Field. After this, about the first of *April*, when the Beans were about eight or twelve Inches high, the Plough-man with his Team of four Horses in length (as they were the first time) went first with the Foot-plough near the middle, and turned up a Thorough; then the Wheel Fallow-plough with four Horses in length followed him, and gathered and turned up another Thorough close from the Beans; then the Foot-plough went and turned up a Thorough from the next Row; and the Fallow-plough followed and turned up another close from the Beans as before: This Operation made one entire four Thorough'd Stitch, that lay between two Rows of Beans, which continued in this Form till the sixth Day of *June*; and then he began again with both the same Ploughs, that harrowed down the Earth to the Roots of the Beans; the Foot-plough first, and the other next, in the contrary manner to the last Way: This then brought all the Land into a level again, except a Henting, or large Thorough that was left in the middle, between the Rows, which was done nothing more to till Harvest, when they reap'd the Beans.

Remarks on the foregoing METHOD.

FIRST this enclosed Chiltern Field was an Oat Stubble, that had but one Ploughing at *Christmas*, which made it turn up at *Candlemas* very rough, when they sowed the Beans in Thoroughs on this clotty, stony, loamy, clay Ground, that was not fine enough for the Beans; because the surly stiffness of its great Pieces, would not shatter and crumble at that time of Year by the power of Frosts, as theirs in the Vale will; so that some of the Beans could not so soon get out with their Heads, as others did, which gave the Weed an Opportunity to get the start of many of the Beans. And when in *June* they threw down the four Thorough'd Bout or Stitch on each Side of the Beans, the Clots fell on some of their Stalks, and beat several down and bruis'd others, and some again fell short; so that the Rows had not, I verily believe, above half the Benefit of the Ploughings, as otherwise they might have had, if the Ground had been in a finer Tilth when it was sown, as it plainly appeared to me, when I walked by the Plough-man as he was at work.

A second Misfortune was, that the Seed was sown too thin; this gave another Opportunity to the Weeds to get the Dominion, which they did to a great Degree, and caused the Rows to return but a slender Crop: Now it was not only my Opinion, but also that of the Plough-man's (who acted according to his Orders) that the Ground should have been ploughed first up at *Michaelmas* into broad Lands, and hack'd a-cross at *Christmas*, then harrowed plain at *Candlemas*, that the Beans might be immediately sown in Drills; this would have brought the Earth into a good Tilth, and prevented the several Misfortunes that the roughness

ness of the Ground by only one ploughing was the Occasion of; for by the fineness of the Land, and thick sowing of the Seed, the Weeds are certainly very much kept under: But the Seeds-man here, could not sow the Beans thick enough in the Thorough, and keep up with the Plough, that went too fast for his doing this as he should have done; and therefore instead of his standing still while the Beans were moulding up, he should have sown the Drill a second time, by straining them in before the Plough. Again, by the fineness of the Ground, when the Stitch comes to be thrown down on the Roots of the Beans, the Earth will be easily drove on, and cover them in such a regular Order, and in all Places alike, that the Weeds will be smothered, and new ones prevented.

This profitable Way, when thus rightly ordered, is of very considerable Advantage to the Owner; for the Ground being by the four Ploughings and one Harrowing, brought into a State of Fertility for Beans, is thereby got into a readiness for the Wheat Crop the following *Michaelmas*; which, if this had not been, must be dung'd and plough'd, till a fine Tilth was got for Wheat; so that here is little or no more Charge, than if the Beans had not been sowed; because this Horse-hoeing brings the Fallow-ground into a readiness all the preceding Year, for the Wheat Crop to succeed; and by sowing and looking after the Beans with good Husbandry, the Weeds may be kept under very well; nor does the Ground suffer any thing from the Beans, by reason they are not of that Nature to peel or make hungry any Ground; but rather by their keeping of Weeds down, and conveying the nitrous Dews to the Roots of their Stalks, and the great Cover their Bodies and Heads make, the Earth is bettered by cleanness and
sweet-

sweetness; two Properties that are of the greatest Consequence to arable Ground: It is by these the Roots of the Beans are encouraged to run horizontally, which is the chief Perfection of this new Way, because of the distance of their Rows, the Beans have full room enough to carry their Fibres at great distances from their Bodies, and enjoy the benefits of the Sun, Dews and Rains, which Beans sowed promiscuously can't have in so large a degree.

And this is further greatly improved by Moulding up their Roots, when the Plough in *June* throws down the stich on both sides of the Beans; and then it is, that this new Cover and Addition of Mould does vast service in sheltering and shading the Roots of the Beans from the too violent scorplings of the Sun's great Heats in *June* and *July*, which otherwise might prove very pernicious to their Growth; and in case the Rains fall after this time, then the nitrous sulphureous qualities of this new laid Earth will be washed in upon the Bean-roots, and so become an actual dressing, and supply the Place of Dungs and other Manures: Here is a benefit indeed, that is little thought of by the passant Observators, who carry their Eyes seldom much further, than to admire the strait Order and distance the Beans grow in.

Another Convenience in this Practice is, that the Dolphin-fly or Black-bug, has not that opportunity here as in the Vale, of ruining a Crop by its venomous attacks, which are often fatal to whole Fields that are sown in the common way; for here is free access even to the minutest part of the Stalk-blossom or Bean-pod, with an application of Salt-water, Mudgel-hole-water, Ashes, Soot, or Lime, &c. that may be thought proper to be made use of as Antidotes and Remedies to pre-

prevent or destroy these Flies or Bugs with their small Eggs, that in some dry Seasons are laid or bred by them in great abundance, which in the end generally spoils most of the Crop.

Another considerable advantage is here gain'd by sowing Beans in these single distant rows, and that is: The room they afford the Owner, to prevent and destroy that worst Weed of all, call'd the Hairy-bind, or Hell-weed, which will run along amongst the Stalks a quarter of a Mile together, and by its creeping quality with its sharp Pines, wounds the Stalks and Pods; and yet this thready Enemy is past finding out in its Original or Roots, which by many have been traced without success; this I say is here easily come at and check'd, if not destroyed in Embryo by the Overseer, who is not here in a Labyrinth or confused Place, as the great Crops in the Vale deserve the Name of.

Another Benefit is, that the Sheep may here be turned in, and be incapable of hurting the Beans by their rub, which in the Vale they often do in quest of their weedy Food, and which they are there obliged to suffer, for the sake of delivering their Crops from the Hairy-weed and others, that the Sheep by going amongst, often break and hinder the Progress of; yet notwithstanding all their endeavours to the contrary, this Hell-weed sometimes gets Master and spoils the Beans, which here they are sure to be delivered from. 'Tis therefore that these several Advantages arise from this Horse-hoeing Practice, viz.

First, The getting the Ground into an early and sweet Tilt for Wheat.

Secondly, The Fallow-ground is employed and the third Year got into a profitable Condition, that otherwise would have had nothing growing on the same.

Thirdly,

Thirdly, The Ground is improved by the Beans shade and shelter, and from the Produce of Dungs made by their Stalks and Roots.

Fourthly, The Beans are greatly nourished by the Mould that is throw'd on their Roots.

Fifthly, They are defended from the Weeds and Dolphin-fly.

Sixthly, The Sheep may have a free access.

This way from beginning to ending may be performed by the Foot-plough entirely with a piece of Iron fix'd at the end of the Beam containing five Notches, that is called a Cock, to this the way is fastened, that the Horse is to draw by, and may by shifting it, make the Plough work nearer or further off as occasion requires.

I have known two Rows of Beans sowed almost close together, and at eight Foot distance two more; but it has been found not to answer so well as a single Row at six Foot distance, because the double Rows were apt to heat each other by their close standing, and gave the Weed more room to come up between them, and also hindered the Mould from coming to all the sides of their Roots; which a single one has the full freedom of enjoying.

The Disadvantages of Horse-boeing.

THE main Objections against this Practice of our Farmers are. *First*, That here are five whole Ploughings and part of a sixth incumbent on this Work, before a Crop of Wheat can be set on the Ground, which are two or three extraordinary. *Secondly*, The Earth can't be so truly got into a Tilt when the Beans are on, as if it had been a clear Fallow, by reason there is no ploughing the Cross-way of the Field, which is

the best method to make Land fine. *Thirdly*, By the early laying on the Dung, the Weather and Ground has an opportunity of exhausting and expending its goodness, before the Wheat can have all its due Nourishment from it.

There have been several Attempts I understand made of late, to get great Crops of Wheat and Artificial Grass, by sowing their Seeds in Drills; but as I never saw the Operation, I can only write on it as the Rationale of it appears to me: By sowing any thing in Drills, is meant a vacant piece of Ground left between them, in order to hoe the upper Earth thereof to the Rows of Grain or Grass: This I own is a good Method for Peas and Beans, because both of them have a strong Stalk; the Pea, though not of so great a Substance in its Stalk as the Bean, yet will be erect long enough for the two Hoings that are due to its Culture; and when it falls and spreads, its Haulm does great Service to the Ground by its large Cover. The Bean being a stronger sort, is generally upright to the last, and will both bear Man's hoeing and Horse-hoeing, provided the Ground is fine; but Wheat, that is a more weaker Stalk than either of them, I cannot find out how it can withstand the Earth's being turned upon them with the Plough, without being beat down or bruised; and much more the Stalks or Blades of the weaker Grass. But if only Man's hoeing is allowed of, I cannot but think the Rows of Wheat are more exposed to the Violence of Winds, Rains, Hails, and Blights by their distant growing, than if they were close together, for then one supports and keeps up the Head of another to the Sun and Air, and thereby are sooner and better ripened in all the Parts of their Head; while that that lolls, falls down and spreads, suffers many ways for want of that Assistance. I suppose one Reason

that may be assigned for such Management, is, that half the Ground being unemployed, is ready for the like Attempt the next Year, in that or other Grain : But in my humble Opinion, this is an Argument of no great Force, since a Fallow better supplies this Conveniency for Wheat ; a thick Crop of which in the common way will, like many others, kill the Weeds, keep the Ground hollow, and prepare it for Beans, Peas, or Oats the following Season ; which makes me at a loss to account for the Profit of Drilling either Wheat or Grass ; since that way not only exposes them to several Damages more than the common Methods, but also brings on a Charge of more Ploughings, or seven or ten Shillings *per* Acre for Man's hocking.



C H A P. XLII.

The Improvement of the TURNEP.

TURNEP is a Root that was not known to be propagated in these Parts in the common Fields, till about sixty Years ago ; and their great Usefulness has caused many Disputes as to the Tything of them : If they are eat off with Store-Sheep, there is none due ; but if Sheep are fatted on them, the Tyth must be paid either in Kind or Money. *Hertfordshire* is a Country where generally more grow than in any other, and as it is certain, every thing must pay its Decimation that

that has immediate valuable Produce from the Earth, either in one sort of Consideration or other; so this, although disputable in some Places some Years since, is now, as far as I can find, freely paid almost every-where.

In this Country they carry the Bell from all others, by being preferr'd at *London* for their surpassing Sweetness, that is owing I presume to our light Soils, which we dress chiefly by Sheep-folding and Soot; this sort of Dressing is more natural and wholesome than the many sorts of noxious Dungs, that they make use of for about fifteen Miles round *London*, for it is certain this, and all other Plants, partake in some degree of the Manure that is mix'd with the Ground; I will not say they excel by any Benefit from our Air beyond others, as the Animal is said to do, but leave this Point for the Decision of a more learned Pen; however, as this most valuable Root is now universally become Food for Man and Beast, I shall here be more particular in its Culture, than otherwise I would, *viz.*

There are several sorts which I shall here pass by, as being mentioned in my first Book, that call for one and the same Management: For the early Crop we sow in *May*, by getting the Ground ploughed up in Winter, which with one or two more afterwards, will become a fine Tilth in that Month; then take Seed of a Year old that is well cured, which is better than the newest Sort, because it is something longer coming up, and therefore takes the stronger Root: Of this Seed, one Pound will sow an Acre, but I would advise every one not to sow less than two; nay, the surest way of all is to throw three Pound on an Acre, for then, says the Farmer, there is enough for the Fly, Slug, and us too; and the hoeing much of a Price, being five Shillings an Acre; and for this,

an honest Hoer in the Neighbourhood, will go over the Crop a second time some Days after, and remedy what he miss'd the first time; for let them be ever so careful the first, they will find the second time furnish Matter enough to employ their Hoes. The next sowing is commonly a Fortnight before or after *Midsummer*; and if that misses, then a third ploughing and sowing may be ventured on as soon as can be done, which sometimes succeed when the two former miss; for it has been found in the Declination of the Summer, that the Fly, or Slug, is not so busy as at other times: Now it is certain, all Ground that is dressed, has abundantly the greater Chance of a Crop of Turneps, than that which is not; because the Manure will push on the Growth of the Turnep so fast, as to make it often out-run the Bite of the Slug and Fly; and when the Turnep has made its third or rough Leaf, neither of them can so easily cripple its Growth.

This leads me to make some Observations on these two Insects, which perhaps were never yet taken notice of by any Author. Several Farmers have hitherto contended, whether the Turnep is destroyed by the Slug or Fly, and if but three in Company, seldom two of them are of one Opinion; one affirming the Fly does all the Mischief, another the Slug, and others both: Now this Slug is a small whitish Insect, about an Inch or more long, of the Snail Tribe, but has no Shell; is bred in the Garden and Field in the Ground, by small Eggs, lies all the Year in the Earth, and does his Mischief (Thief-like) in the Night, and is certainly one of the greatest Enemies to the Turnep, and many other Vegetables; several little Holes may be perceived in the Ground under a young Turnep, through which they make their Passage into their Cells.

The

The Fly has a small black Body, little bigger than a large Flea, skips and flies from one Turnep to another in the Day time, and lies at Night under their Leaf; so that these two Ravagers do their Mischiefs alternately, and are both concerned in the young Turnep's Destruction, as well as the Caterpillar, that is a third Destroyer, and will sometimes with the other two, seize on, and greatly spoil a whole Field, by gnawing off the Leaves clean to the Stalk: Besides these, the Sun now and then by its parching Heats overcomes their first tender Sprout, and destroys whole Crops in their Infancy.

To prevent therefore, and cure these Misfortunes, I shall propose to do it several ways: And first, By Lime, that must lie, and as soon as slackt, sown over the Ground, to the Quantity of twenty, thirty, or forty Bushels on an Acre; immediately after this, the Turnep Seed must be sown, and both harrowed in together. Secondly, By Soot, about fifteen Bushels on an Acre, sown on the Turneps as soon as they appear above Ground; this by its bitter Taste, preserves them while young, from the Thief in a great Measure; and by its Sulphurous Saline Nature kills and drives away both Slug, Fly, and Caterpillar; and so enriches the Ground by these two Qualities, as to make the Turneps grow very swiftly to a large Body, and by the time they are in Perfection, they are as sweet as others. Thirdly, By Sheep-folding; this way is generally found to answer, by penning Sheep on the Ground before it is sown with Turneps, who by treading in their own Dung and Stale, discourage and keep under the breeding of the Slug, Fly, and Caterpillar; and this more especially when the Seed is folded on as soon as sown, which many do, and for some time after; and then they are not under much Apprehension

hension of the Turnep's Miscarriage ; because neither Worm, Slug, Fly, nor Caterpillar will meddle with their ill-tasted Leaf; this also causes the Turnep to grow so quick and great, that in a little time the Leaf will shade its Root against the scorching Sun; and the Ground by the hard treading of the Sheep, will be so closed, as to retain its Moisture longer than ordinary. And lastly, I come to declare one of the finest Secrets that ever was printed of this kind, for its great Efficacy, and (I hope in time) for Cheapness, by which I doubt not but many thousand Acres of Turneps will be preserved from these Insects, which otherwise would be destroyed by them; and thereby save the great Expence of one, and sometimes two, and three Ploughings extraordinary, besides the loss of time, caused often by the first, second, and third Crops being eat up by one or more of these Destroyers ; and also for the great Convenience that attends the Dressing or Preservative, as being to be had in any part of *Great Britain*, when Lime, Soot, Dungs, nor Ashes can't be got.

When then the Turneps begin to appear all over the Field, or piece of Ground, which will be sooner or later, as the Ground is more or less in a Tilth and Heart, and the Weather moist and dry : Then sow three or five Bushels of common Salt over an Acre broad-cast, in the same manner as you sow Lime, Soot, or Ashes, by throwing it extensively with the Hand ; but if Salt was very cheap, eight Bushels on an Acre would do better, because it not only kills the Insect, but is indeed the best of Dressing for the Crop of Turneps, and enriches the Ground for the following Crop of Wheat or Barley ; for no Insect can here reside, where Salt is the Medium justly regulated between the Air and the Earth ; and it is here the
Insect

Insect generally commits its Rapine, which at first is on the Leaf, and then the Stem.

When Turnep-Ground is got into a fine Tilth, it is a good way not to harrow and sow immediately, but let it lie a Week after it is ploughed, and then harrow and sow; because the Fly is apt to follow with the Dust, and make its Lodgement.



CH A P. XLIII.

The Nature, and Improvement of Common S A L T.

SALT is known to be the greatest Conservator of all Bodies, that it is united to, of any other, and consequently the most potent Enemy to all Insects and Putrefaction; 'Tis this Power that prefers it to every thing else for the Farmer's Use, when employed in a judicious manner; for this, like the greatest Cordial, will become rather a Poison than an Antidote, if applied to Excess, as has been frequently experienc'd in Chamber-lye, which, tho' a natural Liquid, is the nearest of any to common Salt in its corroding Quality: This I have dressed my Wheat and Grass Ground with, but in such a Quantity, that it might do good and not harm; and that was, by a Man's walking with a Garden Pot of it, and pouring it through the streaming Holes of the Spout Head, which in good Ground, is at once a sufficient Dressing

sing for a Wheat Crop, if laid on in *February, March* or *April*: But if it is immoderately used, then it will cause both Corn and Grass to turn yellow and burn up. This hot Acid Salt, is not only a Nourisher and Fertilizer of Grain and Grass, but also will at the same time wound and kill all manner of Worms, Slugs, Grubs, Caterpillars, Snails, &c. and will defy and prevent both them, and all the several sorts of the small and great Flies, that with the rest lie in and on the Ground, and about the many Vegetables, and do their Mischiefs Night and Day to the young Turnep, Peas, Corn, Grass, Blossom and Fruit: This minds me of an Observation that was publick to our Neighbourhood, by the small red Worms eating up and destroying several Acres of Wheat, that were harrowed into Clover Ground on one Ploughing; where these Insects so multiplied by the Earth's resting two Years under this Grass, that they presently attack'd the sown Wheat as soon as it came out of the Ground, and eat the Blade in two within the Earth, which brought on such a Damage to the Farmer, that he lost most of his Crop, notwithstanding he footed it all over; this he did about *Candlemas*, that proved too late; and if he had done it sooner, it might perhaps have killed the Worms, or at least made it get lower into the Earth; but then this Soot was liable to be washed away too soon, for the Good of the After-Crop: Yet in such a Case, there was a Necessity to kill or wound the Worm; and therefore if he had sown all over it, that more powerful Antidote Salt, in a half Quantity at first, and the other half at Spring, I can't but suppose it would have proved effectual, to the saving and improving of this Crop.

There have also many Crops of Peas been spoiled by the Worm, Slug, Grub, Fly, Caterpillar,
that

that lie about their Heads and Roots, and eat them up: A sad Instance of this happen'd at *Potten-End*, to a Farmer that had six Acres of Ground sown with Peas on broad Lands, that were near all devour'd by some of these Insects; for at Harvest he carry'd off only half a Waggon Load in all; so likewise will the Grub and others destroy great Quantities of natural Grass, by biting off the Roots or Blades.

Now these several Cases I have mentioned, are to shew the efficacious Nature of Salt-Dressing, which is the greatest Cure of all others, for Ground already infested with Worms, Slugs, and the other Insects, and for preventing their Settlements amongst the Turneps, Grain, Grass, &c. Nor could it ever yet be discovered, as I know of, that any Insect can live in a Body of Salt, by reason their tender parts cannot suffer the corroding Quality, and pinous Nature of this acid Antidote.

Salt, though fixed, is in all Vegetables whatsoever, from the Oak to the Shrub, and is the vital Propagator of all their Growths, as is plainly discovered from the fertilizing Effects of their Ashes, that are thrown over Grass and Corn Grounds; this may also be more plainly seen, if we get a Lye, or Lee from the Ashes of Wood or any other rooted thing, and boil it till a Sediment of Salt remains at bottom; so likewise do all Earths abound in some degree with a fruitious Salt, as may be proved from the great Quantities of Salt-petre that have been extracted from covered Grounds by the help of Water; and it is for this Reason that we burn our Loams, Clays, and Turfs to obtain their Ashes; which have been found to be a most excellent Dressing for any sort of Garden or Field Ware. But

Common Salt is of a far more potent Nature, than Ashes, Lime or Soot, and like them will cause all Crops of Grass and Corn to grow all the Winter, when others that want this Help are cut off, chill'd, and kill'd by the Power of Frosts, Wets and Winds. How greatly then does this noble Manure help the Farmer to Crops of Corn and Grass beyond all others, as to the Quantity, Quality and Cheapness of it, when it was at two Shillings *per* Bushel, as it happened to be this last Year, during the Exemption of the Duty; because it answered the three great Ends of chilling or wounding the Insect, preventing the fatal Effects of Colds, and at the same time, helps both Grass and Corn to grow thick and fast; but this is not all; for

Woodland is mightily improved by this, because the hot, dry and cutting quality of this common Salt, not only causes a quick Growth to the Wood by encreasing in it the vegetable Salt, but at the same time ruins the Breed of Snails, Worms and Grubs, that often lie at the Roots and about the Trees, and prey on their young Fibres, Leaves, Blossom and Fruit; as we often discover at the Felling and Stocking up of Trees. So also

Fruit-Trees and all manner of Garden-ware are greatly assisted by this masculine dressing Common Salt, either scattered on the Surface, that the Rains may gradually wash it upon their Roots, or else by a Lye or Brine made thereof and sprinkled on the same; either way will cause a swift Growth to the Fruit Tree, if not in too large a Quantity, and at the same time deliver it from the Annoyance of all Insects that may hurt and damage it.

Here then I shall endeavour by the nearest Estimate, that I and our Farmers can make, to shew the

the Consumption that is made of Salt in one Year by my Family, and such a one, that consists of a Wife, six Children, a Plough-man, Plough-boy, Tasker, and Maid Servant, viz.

	B.	P.	Q.
S ALT for three Bacon Hogs, each weighing forty Stone, that take up half a Busbel each. }	1	2	0
Salt for three Pickle Porkers, weighing twenty Stone each, that take up a Peck and a Pottle a piece. }	0	3	3
Salt for our Beef, a Quart each Week for three Stone. }	1	2	2
Salt for our Table and Kitchen Use, at a Quart per Week. }	1	2	2
Salt for the Butter of six Milch Cows that are constantly kept throughout the Year, allowing twenty four Pound per Week that is sold as fresh Butter at the Market, a Quart a Week. }	1	2	2
Salt for Brining Twenty Acres of Wheat. }	2	0	0
Total---	9	1	1

The Article of brining Wheat, which is now commonly done throughout the Kingdom to prevent the Smut, I am willing to explain a little: In the first place we put about three Pecks of Salt into so much Water as will cause an Egg to swim; in this we imbibe two Busbels and a half of Wheat

twelve Hours, for sowing an Acre in one Day, the next Day we do the like, and so on till all our Ground is sowed; but every time there is a Renewal of Water and Salt allowed to supply the Consumption each Day's Grain takes up. Also if the six Cows Butter was all the Year salted and potted down as they do in *Suffolk, Cambridgeshire*, and many others, the Total would be more; so that I believe, I am not extravagant in any of the aforesaid Computations; and then the Tenant is obliged of Necessity to pay above thirty Shillings a Year, at three Shillings and four Pence *per Bushel* for Duty on Salt, which is a heavy Article for a fifty Pound *per Year* Farmer, and others in Proportion, to pay, who indeed are reckoned to live the hardiest and carefulest of any of the King's Subjects. And therefore, it is humbly hoped our Legislators will take this into their Consideration, and be pleased to release the Tenant of this burthensome Tax, that he may the better be enabled to pay his Rent, and dress his Land to the greater Encrease of Corn, Grass, Beasts, &c. that will surely augment the publick Revenue, by the Duties that will arise from their plenary Productions.

Or if it is not thought proper to discharge this Impost; that they will permit an eighth or tenth part of Earth to be mixed with Salt, before it can arrive at any of the *British* Ports, that it may be bought by the Farmer as a Dressing for his Land, free from any Suspicion of Fraud that can be used to appropriate it to another Use: And in granting this Exemption of Duty to this, it will no ways lessen the Salt Fund; (for I cannot suppose any Farmer will consume Salt as a Dressing while a Tax is on it) so that by this, the Country will be indulg'd with a most convenient Manure at a cheap Price; and the other Funds consequently enhanced

ced by the Improvements this will be the Cause of; for the more Corn and Grass there is, the more Malt will be made, and Cattle bred and fed, which must encrease the Duties on Malt, Liquors, Leather, Tallow, and Salt,



C H A P. XLIV.

A Receipt for the Steeping of Wheat.

PUT a Tap Wips, and Brass Cock or Tap into a Tub, then put in two Bushels and a Peck of Seed Wheat, on this pour on one Pail full of hot Water, in which two Pound of Nitre or Salt Petre have been dissolved; then throw on a Pail of Water wherein a Peck of Stone Lime has been quenched; directly after this, put in as much Mudgel-hole Water as will swim four or six Inches on the Top of the Grain; in this Grain dissolve two Quarts of common Salt, and let the Wheat soak in this Liquor, from six in the Evening to six of the Clock in the Morning, if you are in haste; or if you have more time, it will be rather better if you put it in one Evening, and take it out the next, and let it lie all Night on the Ground to dry against the next Morning, when slack'd powdered Stone Lime must be by degrees sifted on and mixed with the Wheat, and then it is fit to sow directly. But our usual way is to stir the Grain very well about in the Tub, just before we take it out, that the light Kernels may swim
on

on the Top, and with the Seeds of Weeds (if any) be skimm'd off; and what Liquor is left, may be alike strengthened again, with a proportionable Allowance of the same Ingredients. Thus an Acre of Ground may be every way sowed thick enough with two Bushels and a Peck of this prepared Seed.

This valuable Receipt is a Composition of four or more several sorts of Salts, that are all of a fertilizing Nature, but different in their Qualities. The Nitre is produced in most Countries in *Europe*, by extracting it out of fat Earth; it is also taken from the outsides of Walls and Rocks, but now most of it is brought from the *East Indies* and *Africa*; some have thought it of a hot, others of a cold Nature; in my Opinion, it has not right to the former Character; because when I have used it singly, I could not find that the Grain steep'd in it came up sooner, than that sowed naked and unprepared: It is abundantly impregnated with the Spirit of the Earth and Air, being a fixed Volatile, nitrous, aerial Salt, bitterish and pungent in Taste; If it is fixed on a red-hot Tile or Stone, it will all fly away, if it is pure; but if any thing remain it is common Salt, and surely adulterated. This noble Salt is *apropo* for this Intention, as being the capital Ingredient known by Man, for the Multiplication of all sorts of Grain both in Field and Garden, and even Grass, the Roots of Trees, and all other Vegetables whatsoever, may be prodigiously encreased by its Application, if used in a proper manner; and therefore I have added Lime Water, which is of a hot drying Nature, and will thereby assist the cooler part of the Nitre with its alkaline Salt, to the forwarding the Growth of Grain. The common Salt also is incorporated as a Promoter of the Grain's Improvement, by its hot, drying and sharp Quality; and

and helps by its great Acidity, not only to assist the Kernel's germination, but to keep off Worms, Grubs, and Snails from gnawing it, and its Roots and Shoots. The Mudgel-hole Water, as it is the Drain of the Dunghil, is undoubtedly enrich'd with the Quintessence of the Dungs, and Stales of Horses and other Cattle; the Stales of which consequently push on the Growth of all Grain that is steep'd therein. As to the powdered Lime being mixed at last with the Wheat, it has two Ends or Properties belonging to it; one is, to dry the Seed, and render it fit for sowing out of the Hand; the other is, to promote the Vegetation of the Grain, and defend it against Injuries, by Wets, Frosts, and Insects. This Mixture may be done in a quarter of an Hour, by turning the Seed with the Shovel, and sifting some Lime on it as it is working. The Salt-petre will likewise be dissolved in hot Water about that time, and the Liquor drawn from the Wheat in much the same space.

The great Profit and Conveniency then of this Steeping of the Grain, is manifested in its curing and preventing Smut, fertilizing and causing the Seed to branch into many Stalks, forcing it up almost at once, bringing it forward for early reaping, and, for ought I know, makes the Crop of Grain more spirituous, by impregnating its Farina with a more vital Quality, than otherwise it would have; for it's plain, that all Vegetables most certainly partake of the Nature of the Earth, Dressing and Manure, that accompanies its Seeds or Roots, and become better or worse by their several Juices and Tinctures, as they are more or less healthful and fructuous: It is therefore I infer, that Wheat, Barley or other Grain, so steeped in this Liquor, may possibly be more enriched, than if sown in the common way, by the Spi-

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rit of the Nitre and other Salts, to the great Improvement of both Bread and Beer.

Barley and Oats, &c. may be also thus steep'd to a great Improvement ; but as most other Grain, besides Wheat, Barley and Rye, are hardy enough to grow of themselves, without imbibing any Liquor, or help of Manures ; it is unnecessary to bestow any Charge, Time, or Trouble on them ; so that I shall here but mention, that Barley is to be steep'd in the very same Liquor, and after the same Method, as the Wheat is, only that its Quantity must be three Bushels and an half put into the Tub at once, to be sowed each Day on one Acre ; and the Rye after the like manner, and in the same Quantity as the Wheat.

'Tis obvious of late, the Improvements of the Garden are brought to such Perfection, that even the Peach, Apricot, and many other Fruits, are now enjoy'd in the Months of *May* and *June*, that could not formerly be had till the usual time of *August* and *September*, and that as good and natural as those that ripened late ; so also are the Pine-Apples, and many other Exoticks now naturalized to our Climate, that heretofore were thought impracticable, and that even in some Parts of the *North* ; as are many of the Grapes by the help of Flue Walls, and the fine Melons by high Planting, and artificial warm Assistance ; this Consideration brought me under a Propensity of finding out an Improvement in the Field, that might in some measure answer in the forwarding of Grain, as believing it not only of vast Service in *Hertfordshire* in late sowings of Corn, but would be a means for the *Northern* Counties of *Great Britain* to enjoy Wheat, Rye and Barley, where they never could obtain it before ; and therefore this Winter, 1722, I ploughed up an Acre of Clover Lay into broad Lands, and harrowed in three Bushels

Busshels of Wheat Seed, half of which I prepared after a Method, I hope will answer my Expectation; the other half I sowed in the common way; I also managed one half of the Ground accordingly, and the other I did nothing to: This Experiment I have now under Trial, and was invented by me, in order to find out a way to prevent Wheat, Barley, and Rye suffering by Wets and Frosts, causing them to overtake and be as forward at Harvest, as that sowed at the usual times; and if I can bring this to bear, then may a Crop of Turneps be got, besides a Crop of Wheat, the same Year, to the great enriching of the Ground, lessening the Charge of Dressings, and to the Benefit of the Kingdom in general. And if it succeeds, and I can meet with suitable Encouragement, I shall willingly communicate it to the World.



CH A P. XLV.

The Nature and Improvement of MANURES.

MANURES to the Earth are in some degrees as Food to Animals, that cannot perform their constant work, unless Nature is closely supplied with frequent Recruits of Subsistence; so in the Earth, neither Corn, Grass, nor many other Vegetables can be obtained in a prolifick Manner, without these auxiliary helps, that its Voracious Nature necessitously calls for; for

as they exhaust, the other feeds and supplies, or else the tone of the Ground's strength will soon be debilitated, expended, and only produce its Original destined Weeds: Nor will Manures alone suffice but as part of that Assistance which our Mother Earth requires, because Rains also are to her as necessary; but these are only two, amongst the several others that contribute to her Nourishment, for her chief Promoter is the Sun, whose benign Influences must come at her Surface, or else Dearth and Famine consequently ensue; 'tis this most glorious Body of Heat that attracts her Crudities, and causes her to perspire them away in Fogs, Vapours, and other Exhalations, that also are again return'd in celestial Dews and purifying Airs: The Spirit or Salt of the Earth is likewise replenished by the nitrous Snows and their beneficial Cover, that keeps it as in a Storehouse, that it may in a more plenary manner administer its fertilizing Properties to all Corn, Grass, Wood, and all other Vegetables that grow therein; and for these Reasons, Art was invented and imployed in the Earth's behalf, how it might be best assisted, and that Assistance repeated in such a manner as may be most conducive to answer this great End and Purpose: And first, I must premise that the Earth is like the Animal Oeconomy, affects, and more chearfully receives variety of Nourishment, than if clogged and glutted with one repeated or few sorts of Dressings, but of this I shall by and by speak further, which brings me to a particular account of their distinct Species, *viz.*

Horse-Dung. As it is the Excrement of a hot Creature, it is undoubtedly furnish'd in a plenary manner with the Salts of Corn, Grass, Hay, and Straw, that by them are digested, and loaded with more of their Particles, than from the Bodies of any other Quadrupedes, as may be observed from
their

their Dungs and Litter, which when heaped together in a Quantity, doe there ferment, and become a smoaky fiery Dunghil that will eat off the Shells of Eggs in a Day's time, if put in Vinegar and buried therein; hence it is that this Dung becomes rotten, and then by its intense Heat and Putrefaction, often produces the many Snakes, that are more plentifully bred in *Middlesex*, by the greater Quantities of this Dung that are there made beyond any other County in *England*: And 'tis for this reason, that all rotted Horse-dungs are put on sward Grounds, especially at *Michaelmas*, that the Winter Rains may wash their saline sulphureous Qualities into the Earth, against the succeeding Summer; for if it was laid on in *March* or *April*, and a dry time follows, it would then consequently burn up and destroy the Grass, instead of bringing forward a great Burthen: This Hazard likewise attends Horse-dung when laid on the top of Barley, and therefore is generally ploughed in the last time, that it may better receive the Wets, and not be so soon dried away: But where the short Dung of the Stable is saved under Cover that the Rains cannot wash away its Salts, then it has done very well alone, when thrown over the new sowed Grain of Barley, Wheat, or Rye, but better if mixed with Ashes, Malt-dust, Rabbits, Hens, or Pigeons-dungs; or if Cow-dung is incorporated with it in an Out-house, it will be very efficacious when they are rotted into a fineness and harrowed in with any of those Grains. This short Horse-dung being the softest and richest part of the Dung-hil, the great Rains by their several Washings have more power to wash away its Virtue to the Owner's great loss, when exposed to the Weather; but when it is by Time and Cover thus rotted, either by it self or

mixed, it certainly is a most excellent Dressing to put on Wheat after it is harrowed in upon a Clover-lay, or upon any other broad Lands, wherein Wheat, Barley, or Rye is sowed, because by its being in a short pulveriz'd State, it is the easier wash'd in by the Winter and Summer Rains that follow : It is this rich Dung and its Litter, that will do great Service when ploughed into wet, cold, swampy Grounds, for here it will not only dry the Earth by drinking up its Moisture, but at the same time will heat its Surface and promote the Growth of all Grain and Grass that may be sowed therein ; so likewise upon mossy wettish Meadows. This Horse-dung, if laid on as soon as the Grass is mowed in *May* or *June*, will prove its goodness by returning a plenteous After-pasture, and have more time to rot, wash into the Earth, and be drawn by the Worms : This is not only the Farmers, but the Gardeners best Friend, by making their hot Beds, and producing of Mushrooms, Melons, &c.

The Stale of the Horse, is by some saved at the Corner of the Stable, in a Hole at the end of a descending piece of Ground, and sprinkled on Corn, or Grass, to the great forwarding of their Growths : It is also, as well as the Dung, of a very strong Nature, especially of the Stone-horse, and I will engage it shall answer its several Intents in Vegetation, if rightly applied to any sort of Corn, Grass, or Wood-grounds.

Hog-Dung. Is by most Farmers accounted an excellent Dressing and a quick Promoter of the Growth of all Vegetables, it being of a more moist fat Nature than the dry hot Horse-dung, and therefore it is preferr'd, especially for enriching our Barley-grounds, directly as it is made from the Hog-yard or Stye : For this, by the great
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Quantities of Corn that the Swine devours in fattening, return a considerable deal of saline unctuous Excrement, that will mix with, nourish, and impregnate the Earth, with its fructuous Qualities. It is therefore much better to be incorporated with Mould that is to be laid about a Tree's Roots, than the Horse-dungs; but then due Care must be taken first to let the Swines-dung and Mould lie mixed together sometime before the Tree is planted in it, lest it damages it, for there is generally a great deal of Salt in this solid Dung, that its greasy Nature will not part with, so soon as the more spongy, dry, and light Horse-dungs; wherefore if the Dung of a Hog is applied to a new planted Tree directly from the Yard or Sty; or if the Ground about an old Timber or Fruit-tree is dug up, and this Dung is laid upon or about its Roots in any Quantity, it will kill the Tree. Both this and Cow-dung are in some of the Northern Counties of Value for more than Field use, particularly in *Lincolnshire*; where the Hog-dungs serve for soap and the Cow-dungs for fire. In short it is good for all manner of uses where Dung is requisite; insomuch that it has encouraged several to attempt a dressing of their Land by folding with Swine; but as they are most unruly Creatures, and cannot be well fenced out of a Field by Hedging, it has been laid aside again, by two Farmers that I knew began this Practice. However the general part of ours as well as the Vale-Farmers are more than ordinary careful to improve this fertilizing Dung, by giving the Hog plenty of Straw in the Sty, and throwing into their Yard, Garbidge, Weeds, Roots, and many other Things that they will trample into their Dung, and make it better for Field use than if it was entire.

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I must

I must own that this Dung has been treated as a cool Manure, but I now suspect the Truth of such a Tenet, since this Beast is mostly fatted with Peas and Horse-beans, and undoubtedly the Food of all Animals governs in a great measure the effects of their several Dungs, as may be seen by that and Stable-horses, for the latter is consequently hotter and more efficacious than the former for the growth of Vegetables: So in this of Swine as I take it to be furnish'd with great Store of hot Salts from such Food, I am of Opinion that it is rather a hot dressing; for the better the Food, the better the Dung.

Cow-dung. Is certainly a cold Manure in comparison of many others, and of an easy Solution, which proves it to be of small Virtue in forwarding the Vegetation of Plants if used alone; but if reserved under cover and mixed with Ashes, Malt-dust, Chalk, Lime, Horse-dung, Straw, Turfs of Grass, or with almost any other Earth, so that it may have time but to rot and incorporate; it will become a good dressing, especially on Gravels, Chalks, or Sands, for this being a cool Manure, will the better suit with those hot, dry, and light Grounds; but where its spongy, loose and hollow Parts are exposed to Rains and other Weather, its Goodness is soon wash'd out, and will remain but an insipid Dressing, and much more if it is laid on the Fallow-grounds in Summer, as some of the ignorant Husbandmen do, where it lies spread on their Field-lands three or four of the Summer Months together, till the Sun and Air have exhausted all the Virtue thereof: This Dung thus rotted and mixed will also do great service on Sward or Pasture Ground, and produce a sweet Grass: So likewise if laid on arable Land presently ploughed in, will cause good Crops of Corn, especially in the light Grounds.

Mules

Mules and Asses Dung. Are so near the make and nature of Horse-dung, as to want no Explanation here.

Sheep's-Dung. By more than one Author is described as the best Ingredient of all others dissolved in Water, in order to multiply and forward the Growth of all Grain that may be steeped and imbib'd therein; but this and several other such ancient Notions are now supplanted by that much more excellent Propagator Salt-petre, with the help of some others; however as it stands in the Class of Dungs, I must confess, I have found it by Experience to be the best and most universal Dressing of all others that we use, to promote Vegetation, and that both in Summer and Winter.

This most serviceable Dung being of a hard, hot, saline, unctuous Nature, does more potently assist the Ground, than either Horse, Hog, or Cow-dung, by its substantial Parts, that are not so soon dissolved and washed away by Rains, evaporated by the Sun, and dried by the Air, as those more soft ones are, as may be seen by the great Quantities that lie long on the Surface of Commons and Fields, and therefore very much assist all manner of Clays, Loams, Gravels, Chalks, Sands and Grass Grounds. On Clays, as they are the coldest of Earths, and this is the warmest for Creatures; this Ground, as it is folded on, is mightily nourished by their Wool, Dung, and Stale. By their Wool, as it is press'd to the Earth by their lying on it, there is a Heat communicated, that its cold Nature greedily draws in and benefits it self, and not only by this, but also by its Grease, which are both reckoned to succour the Clay, as appears by the Application of Lime and Oyl Cakes, that I shall hereafter mention. By their Dung, this Clay returns very great Crops, for by its tenacious close
Nature,

Nature, it holds this Dressing a long time, whereby it is heated, and in some degree hollowed when ploughed in, by which the Grain's Growth is forwarded most part of the Summer and Winter; and by the Sheep's treading it upon this Ground, it mixes with it in a much closer manner, than Dungs only laid on and ploughed in, whereby its Salts are closely joined to those of the Clay, and both together cause great Stalks and Ears of Wheat, &c. that we often see are the largest of all others. This Dung is certainly the more rich, as it is made by a Beast that can and generally does subsist without the help of Water all the Year; for which Reason, their Dung is more than ordinary impregnated with those Vegetable Salts that are contain'd in the Grass, Hay, Straw, and Corn that they alternately feed on; It is this saline Excrement, that is an Enemy to all Worms, Slugs, Grubs, Flies, and Catterpillars, as we find to our great Profit, by folding before and after the sowing of Turnep, Wheat, Barley, and other Seeds, and when fed on Hay or Straw in Yards in the Winter, these Creatures are of prodigious Service in converting Stover to one of the best of Dungs; which have partly occasion'd many of our Farmers this great Straw-Year, to buy in Weathers to eat it, and make Dung instead of Cows, that sold as dear as Sheep were cheap.

A Fold (a cover'd one especially, if it could be had) is a very great Enricher both of Grass and arable Grounds, by folding on the same all the Winter with Weather Sheep, first strewing every Night a little Straw over the Ground, to keep it from too violently drawing the Body of the Sheep, which will also occasion their making the more Dung; and as it is deem'd by many the best of Dressing, care is generally used to save and obtain

tain it after the best Manner; some therefore will add two Hurdles to a Fold of twelve, and so in proportion to more, about six Weeks before *Michaelmas*, because then the Days are more short, and the Sun not so powerful to attract and exhaust the Virtue of their Dung and Stale, as in the hotter Seasons, which renders a thin Dressing in the Fold at this cooler time of the Year, equal to a thicker one in the foregoing drier Part of the Summer.

The Stale likewise of this Beast is of course hotter and saltier than some others, by so much as it is less used to supply its Drought by drinking; and therefore it is of a more fertile Quality to the Ground, which causes the diligent Shepherd every Morning to drive the Sheep briskly about the Fold, that they may be provoked to Dung and Stale, before they are let out.

The Dung and Stale of Sheep, are most efficacious on all manner of Loams, but more on Gravels, Chalks and Sands; because these Grounds being of a light, hollow Nature (especially the two last) are by the help of the Fold, brought under a closer Union in their Parts, than they otherwise would be, by any other Method that is now in use, whereby this Dressing is made to mix with, and stick to this loose, short Earth in such a tenacious manner, as enables it much better to administer its Salts to the Corn or Grass that grows therein; and then it becomes much firmer, and the Vegetables more fix'd and empower'd to withstand the Violence of Winds, and the Bathings and Washings of Beat-rains that otherwise might be fatal to such Grain, as I have before particularly explain'd as in the Chapters of Chalks and Sands.

Rabbits-Dung. Is of so hot and fertile a Nature to both ploughed and sward Ground, that it is sold with us for Six-pence the single Bushel trodden in, after it has lain near twelve Months under cover, rotting, and is most commonly made use of in our Gravels, Chalks and Loams, where it is first sowed by the Hand out of the Seed-cot, and harrowed in with Barley, but will not so well answer in wettish Soils, as the Pigeons and some other Dungs will, because this is not of so hot a Nature as they are, yet as this Creature like the Sheep, can live without Water, its Dung and Stale is more hot and saline than many other of the four-footed sort are: That renders it of exquisite Service both in proper, arable and Grass-grounds, if laid on either of them early enough, as at *Christmas*, or *Candlemas*, that the Sun and Air may not dry and exhaust it, before its fertile Salts are communicated to the Roots of the Corn, Grass, or Trees; likewise for the Encrease of Turneps, this is of vast Service. if thirty Bushels are harrowed into the Ground with the Seed: It has often moved my regret, to think of the great Quantities of this, as well as several other rich Dressings that are carried to the *London* Lestols, and there consumed to little purpose, for it is certainly worth our while to pay very well for this tame Rabbits-dung there, and bring it thirty Miles into the Country afterwards.

Urines. As they are endowed with a burning Spirit, it calls for a careful Management on all sorts of Grass, Corn, or Roots of Trees, that it furiously assists or destroys, as it is discreetly or indiscreetly applied; its right Use being not only in a small Quantity, but at a proper Season: In the first, it should be no more than sprinkled or poured on in small streams, out of a watering or
other

other Pot or Dish: In the latter, it is to be done in *January*, *February*, or before *May* is over, that the dying heat of the Weather may not add to the fiery part of the Stale. I have thought human Stale of that importance in promoting the growth of Corn, Grass, and Trees, that I have and do allow my Maid-servant Three-pence for every Kilderkin she saves by emptying the Chamber-pots into a Cask, which when full, I put into a Cart, and let it run out on my Corn or Grass, as it is drawn over them, by pulling out the Cork at each end of the Vessel. Likewise when I empty my necessary House, the Man mixes Straw with it in each Barrow, and puts it on a heap to lie in the Weather and rot, till it becomes fit to put on my Land, where when it is ploughed in, either at *Michaelmas* for Wheat or Rye, or in the Spring for Barley, it is of very great and lasting Service. The Urine of the Horse I take to be the strongest of any; next to that the Dog, as is proved by the Litter out of a Kennel of Hounds, which has been found to be of a more fiery Nature, than the Sheep, Hog and Cow; Chamberlye has peeled Wheat when soaked with Brine in it.

Pigeons-Dung. Is indisputably the hottest Dung for all wet Clays and moist Loams, where in a peculiar manner the fiery Salts act most potently in bringing forward the Growth of all Grain, Grass and Trees, that are sowed and planted in these chilly cold Grounds, and is therefore sent for many Miles by the Vale-men, and bought at Ten-pence the heap'd Bushel, chiefly for their Barley-crops; because in Wheat-grounds it does not so well answer, if mix'd with the Earth about *Michaelmas*, for then by its lying in or on it near twelve Months, the Rains are apt to wash away its light fertile Properties too soon; but if sowed

the latter end of *February* or the beginning of *March*, this Dung will prove most efficacious if ploughed or harrowed in with the Grain, or sowed out of the Seed-cot on the Surface immediately after the Barley is got into the Ground; however in my Opinion harrowing in is the best way, for then it lies the nearest to the Kernel's Body, and if a wet Time should succeed, the Grain will soon get a Head, that will cover its Roots and shade them against the scorching Heats of Summer: But tho' I mention only Clays and Loams, yet is there no one Soil as I know of that this Dung will not do good on, both in arable and meadow Grounds.

Hens-Dung. And all manner of other Fowls-dung, are of the very same sort of service to all Land, tho' not quite so hot and good as the Pigeons, if they are throwed on about *Christmas* or *Candlemas*, for then it is to be hoped sufficient Quantities of Rain will fall before the Spring is over, as to cause all Corn and Grass under it to get a forward Head and Shelter against the Summer Droughts: This Hens-dung with us is sold for six-pence the double Bushel, put into the measure as hollow as can be, but if trod in and heaped, then a single Bushel is reckoned at the same Price, and is used in all the intents and purposes as Pigeons-dung is. Hens-dung is frequently mix'd with Chaff, Malt-dust, short Horse-dung, Cows-dung, &c. by putting any of them under, where these Fowls roost, that they may be incorporated and rot together, for here this Manure will mix with and diffuse its Salts into their several Species, so as greatly to encrease a large Quantity of excellent Hand-dressing for all sorts of Corn, Grass, or Wood-land: This makes some reckon one Load of neat Hens-dung to be worth six of some common Dung, and is of such light clean Portage in Sacks on
Horse-

Horse-backs, that it may be carried and sowed in distant Grounds, when the Cart cannot conveniently come.

Soot. Is a most powerful Manure, made use of by many of our best Farmers in the Chiltern, tho' but by few in the Vale, because they grudge the Charge, and supply it with their Flocks of Sheep; not but that it will do as much good there as any where: Its chief use is, on Wheat, Rye and Barley, and is commonly sown from *Christmas* to *April* on any of them out of a Seed-Cot as thin as can well be, to the Quantity of twenty or twenty-five Bushels on an Acre, for if the Soot was to be sown sooner, the Winter Rains and Snows would endanger its goodness being wash'd away too early; but of late some sow their Wheat and Rye in *August*, that they may eat their first head in *November* with their Sheep, as reckoning it to be near as good a Crop as of Grass; and then will dress them with Soot about *Christmas*, that they may the sooner get a second Head. This is also a most excellent Dressing if that Quantity is sowed on Barley just harrowed into the Ground, and will not only return a good Crop of this, but also another of Peas, Beans, Thetches or Tails, the succeeding Season: On new sown Turneps there is nothing better than Soot, because it destroys and keeps off the Insects, and vastly forwards the Turneps growth: On *St. Foyn*, twenty Bushels of this sown at *Candlemas* on an Acre once in three Years, exceeds all other Dressings whatsoever, and so on Lucern, Clover, and all other artificial and natural Grasses, because it kills all Moss, and forces on the growth of the *St. Foyn* so fast, that it gets the better off, and keeps down the breed of Weeds; it also spoils the Growth of the Clobweed, Rush, and several other coarse Vegetables, and

and brings up in their room the Honey-suckle the same Year : Of late our Farmers have been so frugal, as to buy their Soot at *London* in the Summer, by carrying thither Grain, Chaff, or Wood, and bringing back Soot, which they lay in a cover'd place all the Winter till *Christmas* or *Candlemas* for Wheat, or later for Barley, for then it is commonly ten or twelve-pence the Bushel delivered to us in the Country; whereas if we buy it at the best Hand in *London*, before or presently after Harvest, we often have it for Six-pence the Bushel there; but then due care must be taken that it is not adulterated with Cork, Smiths or other Ashes, that are too often mix'd for the Encrease of their Measure, especially by those Chimney-sweepers that live in the Suburbs of *London*: Also if it is bought of the Waggoners, their Measure should be examin'd, for I have known one of the worst sort of them, bring down four or five, as presuming it would not be observed by the Buyer. In short, there are such Quantities yearly used of this forcing Dressing, that some fifty Pounds a Year Farmers have consumed three Hundred Bushels in one Spring Season: Nor do I know of few or any that rent from fifty Pounds a Year and upwards, but what buy annually more or less of this *London* Soot, that will dress our Chiltern-land for two Crops: I have therefore thought it necessarily incumbent on me to enlarge on this most valuable Article, and because Authors in this, as far as I have found, are generally deficient in exposing its several Uses; and particularly Mr. Worlidge, who tho' a far greater Scholar than myself, yet is so wide of the Matter, that I will here insert all he says of it (as far as I know) in his six Shillings bound Book, Entitled, *A Compleat System of Husbandry, &c.* Dated in the Year 1716, Page 119. "Soot also is affirmed by some
" to

“ to be very good, especially that which is made
“ of Wood. It’s most beneficial to Trees or
“ Plants that either grow in the Shade, or to cold
“ or moist Grounds. ”

There is a new piece of good Husbandry of late acted by some that buy their Soot in Summer, and lay it in the same Field that is to be sown with it, where they thatch the Heaps with Straw, that keeps off all Weather.

Ashes. Either of the Wood or Coal sort, are a very good dressing for Corn or Grass-grounds, the first we buy for Three-half-pence the single Bushel, and sow it out of a Seed-cot in our Wheat, Rye, or Barley-ground, in *February* or *March*, by throwing twenty, thirty, or forty Bushels on an Acre of the Surface; but the Coal-ashes are so full of Sulphur, that eight Sacks, or thirty two Bushels are full enough for an Acre, and are generally used on Grass grounds, where they will burn off the Moss, and suddenly breed the Honey-suckle-grass to that degree, that I must needs say, I think it an excellent Manure, especially if Rains soon follow their sowing: Farmer *Wright* of *Barly-end* this last Spring, put on about twenty four Bushels on an Acre, and had such a Burthen, as he never received in one Year on the same Ground these thirty Years past: It was the Expression of a judicious Man I was in Company with, that a Bushel of Coal-ashes was as good for Iward Ground, as a Bushel of our Wood-soot that is here sold for Six-pence; because the Sulphur in one was so much hotter and more preferable to the Salt in the other, and, next to Soot, is one of the best Remedies for killing the Clob-weed, Rush, and other coarse Grasses that too often infest the Meadow-grounds: The Ashes of Wood and Coal of late have gained great Reputation for their many fertile Uses, as well by themselves,

as mix'd with short Horse-dung, Cows, Fowls, and other Dungs and Stover; so likewise have those made from burnt Clay, Mould, Heat, Turf and Ant-hills: Yet I know of a large Meadow containing two or three Hundred Acres, that were run over with Ant-hills, or Pissum-banks very thick; the Hills were cut up with the wide Sharr-plough, and the Grass-part put into Heaps with the Forks to lie and rot, but the Mould-part was immediately scattered over the Ground with the Shovel; the Turfs being not to be medled with till they are got fine by lying, fermenting and putrifying almost a Year, and then it is to be spread about the Field: The reason for putting the Turf into several Heaps, and not burning it into Ashes, was by the Owner thought more proper, because in this manner it contained and kept in its Sales better, than if often turned and exposed to the Washings of great Rains, or burnt; and also because this Ground lying low and wettish, this way would better thicken it, and keep it drier hereafter, than if it was reduced to Ashes, which I think is very consonant to good Husbandry: But whoever buys these *London* Ashes must take particular Care that they be pure and not adulterated with Dust and other Trumpery, for then they will likely deceive your Expectation; and so will the Ashes from great Brewhouses, Smiths Forges, Glass-houses, and other Places in and about *London*, where by the fury of their large Fires the Ashes are burnt to that degree that little goodness is left in them, which causes those from private Families to be much more excellent, as they are less burnt, for promoting the growth of Vegetables. In the Country we make a particular distinction between Ashes from Wood (the hard sort especially) and those from Furze, Fern, and Straw, for the latter are not so valuable as the former, because

cause the wood sort exceeds those from Furze, as much as the Furze does those from Fern, and Fern from Straw. Yet notwithstanding the great goodness there is in these Soap-ashes and all others, they may be used to a Fault; for I have known this Dressing so often repeated on one and the same piece of Ground, that they have lain so thick at bottom as to choak the growth of the Grass to its very great damage, but of alternate Manures I shall in this Chapter write further. However, to do justice to this fertile Dressing, I must commend it next to Soot, Lime, and Fowls-dung, for not breeding Weeds, at the same time it nourishes the Earth, as the Horse and some other Dungs are apt to do, which has raised my Esteem so much for the *London Ashes*, that when I have sent Stack-wood thither, my Team has brought back a Load of these from the Town Lay-stalls, for which we pay Twelve-pence there; but these are wrong Places to take them from, because as they here lie open to the Weather, they are often washed by the Rains, and so lose a great deal of their Sulphur, which is the essential part of their Dressing, whereas if the Ashes were saved under cover, as they are brought out of the Houses, their goodness might better be depended on.

Lime. Has often been proved to be a prolifick Dressing of all manner of Ground whatsoever, if used in a right manner: For in this is coagulated a balsamick alkaline Salt, that before was fixed in the crude Stone or Chalk, and unable to act in the growth of Vegetables; but now made free, and set at liberty by Calcination: For till the acid barren Quality of Stones or other Minerals is evaporated by Fire, the Salts in them are of little or no signification to Land; and so of Chalks and other Earths, unless they are cured by Fire, Fermentation or Putrefaction, they are not capa-

ble of benefiting the Ground, Grain or Grass they are laid amongst, because no hard dense Bodies can mix with, and assist the Earth, as the more loose and powder'd ones do, nor can their worse sterile earthy parts, that lie concealed in their original pristine State, be of service, till they are converted into a contrary Nature, which makes this dry burning Lime, not only to absorb and consume the Wets and moisture of Grounds that are often fatal in the Winter and Spring to the Wheat, Rye and Grass, but also kills, wounds and drives away Worms, Snails, Grubs and Caterpillars; Lime therefore is used many Ways in Farming. *First*, By mixing it with Turf, Dung or Mould, and suffered to lie till they are rotted and incorporated together, which will make an excellent dressing for Corn or Grass-ground. *Secondly*, Forty Bushels of Stone-lime should be slack'd in one Heap in the Field by the Weather, which it will do in a few Days, and then sowed over an Acre out of a Seed-cot as thin as it can well be; this may thus remain for a Week, when the Wheat may be harrowed in broad Lands, or sowed in Stitches: Others will fetch Water directly and slack the Lime as soon as it is in the Field, and sow it while it is hot, that it may bring the Ground into a Ferment. *Thirdly*, It must be in like manner and quantity sowed over the Ground with Turnep-seed; the Lime is first to be harrowed in twice in a Place, and then the Turnep-seed once in a Place with light Harrows, *Fourthly*, On a Clover Lay forty Bushels may be harrowed in while it is hot, and let lye a Week or Fortnight, then harrow in the Wheat; this will deliver the Grain from the destructive Worm and other Insects, that often here destroy the Wheat, and will also cause it to gather thicker, and maintain itself in the cold wet Times of the Winter and

and Spring, when others sicken or die; and therefore am surprized to find a late Author say, that Lime is most natural for light, sandy hot gravelly Grounds, and bad for wet, cold Gravels, but worst of all for cold Clays, as the same Mr. Worlidge says, Page 106. Now in answer to this Assertion; It is my Opinion that Lime by its fructuous Salts and light Parts agrees with all sorts of Grounds, both arable and grazing, but best of all with the cold wet Clays: For here are two opposite Natures, the one a sweet burning sort, the other of a very austere frigid one; which is consequently an Argument for the great good that Lime does on this Ground, and may apparently be seen from my Neighbour's Management, who with the Limy rubbish of his Kiln, dresses his high Clay-grounds, that annually return him vast Crops; and not only here, but in other Places that I have seen of the like Soil, and will hold good in the Ground for six Years, if Peas or Beans follow the first wheat Crop.

Chalk. Is a Mineral that is of most exquisite Service in Farming, as being the greatest Alternative of any other to our Clays, Loams and Gravels: Without this great Improver, the many fine Crops of Corn and artificial Grasses could not be obtained that are, because it cures the Clays of their sour, austere, cold, hard and tough Qualities, and Establishes for sometimes twelve, or twenty Years together a lightness, warmth, sweetness and shortness in their room; and so also in the Loams and Gravels, this Earth does wonders by converting their sour and binding Natures into their contrary Qualities, whereby the Plough performs its Operations more easily, and the Ground becomes more fertile, by causing these Earths to emit their Salts to their several Vegetables with freedom, which otherways would be tenaciously

fix'd and kept from nourishing the Corn and Grass, that would then want their vital Assistance; so that it evidently appears, that those who chalk most, receive the greatest Crops: But in the Vale they stand not in so much need of this most kind Earth, because their black and blewish Marly-clays are naturally short in themselves, and readily yield to the Power of the Air and Rain: Whereas our red Clays in the Chiltern are quite different to those of the Vale, and require the Help of Chalk or Sand to reduce their surly Bodies, as they will not be prolifick in their Productions: But this Dressing I have amply discours'd of in the Chapter of Chalks.

Horn-shavings. Are a warm spirituous hollow Dressing, and are of two Sorts, the finer and the coarser; the first is generally sold for twelve Shillings the twelve Bushel-sack, and the latter for less, and are sown out of a Seed-cot on Wheat, Rye, or Barley-ground just before the last Ploughing, to the Quantity of twenty four Bushels on an Acre, that will last six Years in the Earth; they are generally ploughed in with Wheat or Rye in Stitches, and also before Wheat, Rye, or Barley are harrowed in broad Lands: It is a most excellent Dressing in white Grounds, Sands, Gravels, or Loams.

Rags are a warm Manure, and by their spongy hollow Parts serve as a very good Dressing in Chalks, Sands, Loams and Gravels, but best of all in the white Grounds, for in this dry Soil they lie, receive, and retain the Wets a long time, to the great Nourishment of the Grain or Grass that grows amongst them; and also by their thready, woolly Property will, in some measure, hold together this short Earth against the Frosts, Winds and Wets, that are apt to shoal, shatter, and blow away the Ground from the Roots of the Corn,
and

and for this Purpose they are chop'd by a proper Instrument so small as to be fit for sowing with the Hand out of a Seed-cot, just before the last Ploughing for Wheat or Barley, and then ploughed in with the Wheat in Stitches; or if the Wheat and Barley are sown in broad Lands, the Rags must be first ploughed in, and the Grain harrowed after: Some will plough them in about *Albollantide*, that they may rot and mix with the Earth against the Barley Season: These Rags are better or worse in Goodness and Value, the head Price of all being four Shillings *per* hundred Weight, and an Acre requires four or five Hundred.

Hoofs. Are used after another Manner of late, the Oxen or Cows especially, for instead of cutting them to Pieces and ploughing them into the Ground; we force them into the Earth with Sticks, presently after the Wheat, Barley or Rye is sown, at about six Inches or a Foot distance, in order to prevent the Dog, &c. carrying them away; here they lie almost smother'd with their Operations ready to receive and lodge the Rains, which will cause them to rot, putrify and mellow the Ground, so that by reason of the Dirt about them, their fast lying in the Ground, and their nauseous Taste and Scent, they lie safe from Dog, Fox, Badger, wild and Pole-cats, Weasels, Ranes and Sloats, and is a Dressing for six Years to Chalks, Gravels, Loams, Sands, and almost all other Soils; as are the Sheeps, Hogs, Goats and Dears-hoofs, that are commonly ploughed in the last time for Wheat, Rye or Barley, as being of a smaller Bulk, and more easily covered in the Ground than the Cows are.

Hogs-hair and Coney-clippings. Are very good dressings for the light Soils harrowed in with Wheat, Rye or Barley, so are Oyl-Cakes of Rape-seed, &c. that are now used much about *Luton* in *Bedfordshire*,

Bedfordshire, which they chop small or grind, and plough or harrow into a great Profit. These are most of them general Manures, and used more than ever, insomuch that I know four Farmers Neighbours, that have equally contributed to the Purchase of twenty twelve-bushel Sacks, which they alternately fill with Chaff, &c. and carry to *London* in their Waggon, where they again load with some of these as a Dressing for their Land: The Shavings, Hoofs, Coney-clippings, and other Manures, we commonly buy at Mr. *Atkins* in *Turnmillstreet* near *Clarkenwel*.

These several Manures and Dressings for Land, are happily Ordain'd by Providence for the Encrease of Grain, Grass, Wood, &c. as being of most exquisite service to accomplish that great End, if by a right judgment they are duly adapted to Grain, Grass, Wood, Soils and Seasons; otherwise they may become auxiliary Evils instead of Helps: As for Example, if a Person was to dress his wet Clays in Winter with only Cow-dung, or his Sands or Gravels in Summer with Soot, Lime, or Pigeons-dung; it's very likely he may lose the end of his Design, by the first being wash'd away thro' its cold loose Parts, and so rendered of little or no Efficacy; and the other by its saline sulphureous Nature, with the help of the Sun and dry Weather, be assisted in spoiling the Crops that grow therein: But above all other management there is an absolute necessity for making use of these Dressings alternately, that is, not only to dress the Grain, Grass and Soil with a Manure, but to alter these Supplies each Season; for if I dress my Wheat-crop this time with Stable-dung, the next time it should be with Soot, and the third time with the Fold, Horn-shavings, Hogs-hair, Hoofs, or some other Change, and so for any of the Grain, &c. else it may be depended on, the
Earth

Earth and Grain will be saturated and tired with the repetition of one and the same sort, which is often the Cause of thin Crops; and to my Knowledge but lightly regarded by some ignorant Husbandmen, tho' to my Satisfaction I must own this profitable Notion of late has obtain'd a Probation with many that formerly cavill'd with a useful Tennet meerly for its being new; for undoubtedly different Dressings impregnates the Ground with different Salts and Sulphurs, which oblige the Roots of all Vegetables that grow therein, to draw their Food each time in a various manner, as I have demonstrated in the Chapter of the Beech-tree, and for which reason, as I have said before, the best Farmers change not only their Dressings, but also their Seed each, or at every other time of sowing for its greater Encrease: 'Tis therefore that we dress the Oat-stubble with Cart-dung for the following Crop of Wheat, in order to lighten and hollow the Earth that is commonly clung and heavy after an Oat-crop; but after a Pea or Bean-crop we fold for the succeeding Wheat-crop, because after them, the Ground is generally loose and hollow.

F I N I S.

Earth and Grain will be saturated and tired with the repetition of one and the same sort, which is often the Cause of this Crops; and to my Knowledge but rightly regarded by some ignorant Practitioners, tho' to my Satisfaction I must own this profitable Motion of Land has obtained a Tradition with many that formerly cavill'd with a strict Notion merely for its being new; but undoubtedly different Distances impregnates the Ground with different Salts and Sulphurs, which oblige the Roots of all Vegetables that grow therein to draw their Food each time in a various manner, as I have demonstrated in the Case of the Beech-tree, and for which reason we find before, the best Farmer changes their Distances, but also their Seed each time every other time of sowing for its greater Increase: 'Tis therefore that we drive the Oat-stubble with Cart-dung for the following Crop of Wheat, in order to lighten and hollow the Earth that is commonly clung and heavy with an Oat-crop; but after a Year or two-crop we hold for the succeeding Wheat-crop, because after them the Ground is generally loose and hollow.



EVMS

